

REMARKS

Claims 1-11 are in the case.

The courtesies extended by Examiner El-Arini in granting a telephone interview with attorney for Applicant, Brian L. Belles, on March 30, 2006 are noted with appreciation. During the interview, the merits of the current claim rejections over U.S. Patent 5,017,236 ("Moxness") were briefly discussed. In order to preserve the record, it was suggested that all arguments be submitted in writing in a formal response to the March 15, 2006 Final Action. Accordingly, this Response is being filed.

Also during the interview, Mr. Belles noted that one or more of the current claims were similar to certain claims set forth in U.S. Patents 6,681,782 and 6,463,938, which issued from parent applications of the present application. Thus, in order to eliminate the possibility of any double-patenting issues, Applicant hereby submits contemporaneously herewith terminal disclaimers for U.S. Patents 6,681,782 and 6,463,938.

Turning now to the merits of the rejection set forth in the March 15, 2006 Final Action, claims 1-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,017,236 ("Moxness"). The Final Action cites Moxness as disclosing "a method an apparatus for liquid processing of substrates, such as semiconductor wafers or other such items, using high frequency sonic wave energy, including megasonic or ultrasonic wave energy. See col. 1, lines 6-29. The reference [Moxness] discloses maintaining the substrate substantially horizontal. See Fig. 2. The reference discloses substrate chamber 12 is provided for maintaining a substrate 14 immersed in liquid processing solution. See col. 3, lines 41-43. The substrate chamber is further provided with appropriate inlet and outlet ports for flowing processing solution and ultrapure water there through. See col. 4, lines 48-49...."

The Final Action acknowledges that Moxness does not teach "positioning the transmitter and transmitting sonic energy to the liquid on one planar side of the substrate as claimed [in claims 1 and 5]." However, the position is taken that it would have been obvious "to rearrange the position of the transmitter [of the Moxness system] with respect to the substrate to obtain the

claimed process, because it was held to be an obvious matter of design choice." To support this position, the cases of *In re Khule* and *In re Jopikse* are cited. No other evidence is set forth in the Final Action to support the rejection.

As a threshold matter, the rejection of the claims in the Final Action clearly fail to make out a case of prima facie obviousness. It is well established that the examiner initially bears the burden of **factually** supporting any prima facie conclusion of obviousness. See MPEP § 2142. It is also well established that the USPTO can not bridge evidentiary gaps by resorting to so-called mechanical or per se rules to establish obviousness under 35 U.S.C. § 103. See *Ex Parte Makutonin*, 2003 WL 23014547, *3 (Bd. Pat. App. & Interf.); *In re Ochiai*, 71 F.3d 1565, 1570, 37 USPQ2d 1127, 1132 (Fed. Cir. 1995); *In re Wright*, 343 F.2d 761, 769-70, 145 USPQ 182, 190 (CCPA 1965). In the present application, the deficiencies of Moxness are supplied by solely relying on the "design choice" rule established in the *In re Kuhle* and *In re Jopikse* cases. The Final Action is absolutely devoid of any factual or technical evidence to support the rejections under 35 U.S.C. § 103. Thus, because no factual evidence is presented to support the obviousness rejections of claims 1-11 in the Final Action, **a prima facie case of obviousness over Moxness has not been established**. Therefore, it is respectfully requested that the rejection be withdrawn.

As a result of a prima facie case of obviousness not being established in the present application, the Applicant is clearly under no obligation to submit evidence of nonobviousness. See MPEP § 2142. However, in order to expedite prosecution of the present application, Applicant will now address the substance of the Moxness reference and the outstanding rejection.

In rejecting claims 1-11 under 35 U.S.C. § 103, the Final Action takes the position that it would have been an obvious matter of design choice "to rearrange the position of the transmitter [of the Moxness system] with respect to the substrate to obtain the claimed process." This position is both improper and not supported by the technological facts.

First, reliance on the *In re Kuhle* and *In re Jopikse* cases is misplaced because rearranging the position of the transmitter of the Moxness system so that it is above or below the substrate

rather than horizontally aligned with its edge is not a "mere design choice." As discussed in greater detail below, not only would such a modification negatively affect the functioning of the Moxness system, it would also require an entire overhaul and redesign of the mechanical structure of the Moxness system. Moreover, at the time of the invention, it was unexpected that one could process the opposite surface (or both surfaces simultaneously) of a substrate by applying sonic energy to a first surface of the substrate, as is set forth in the claims. Thus, the proposed modification of the Moxness system is unlike the situation in *In re Kuhle* where the claimed system and the prior art system operated on the same principle, in the same manner and had no unexpected results. See *In re Kuhle*, 526 F.2d at 55. Thus, the logic of *In re Kuhle* is inapplicable to support the position in the Final Action that rearranging the position of the transmitter of the Moxness system so that it is above or below the substrate rather than horizontally aligned with its edge is a mere design choice.

Similarly, the proposed modification of the Moxness system is unlike the situation in *In re Japikse* where the difference between the claimed system and that of the prior art system was a functionally equivalent and interchangeable component that was immaterial to the invention. In the present application, it is the position of the transmitter relative to the substrate that achieves the claimed method and unexpected processing results. Importantly, the Board of Patent Appeals & Interferences has clearly stated that *In re Japikse* is limited to cases where the position of a component is immaterial, i.e., where the overall operation of the device would not be affected by a change in position. See e.g., *Ex Parte Robles*, 1997 WL 1883840, *2 (Bd. Pat. App. & Interf.); *Ex Parte McCrane*, 1998 WL 1736165, *3 (Bd. Pat. App. & Interf.). Therefore, the logic of *In re Japikse* is clearly inapplicable to support the position in the Final Action that rearranging the position of the transmitter of the Moxness system so that it is above the substrate rather than horizontally aligned with its edge is a mere design choice.

Furthermore, a reading of Moxness reveals that one skilled in the art not be motivated to modify the Moxness system in the proposed manner. In fact, the Moxness reference teaches away from such a modification. In the Moxness system, the transducer assembly (which comprises the ceramic transducer 20 and the funnel-shaped transmitter 22) is positioned in a horizontal orientation adjacent the edge of the wafer 14 that is horizontally supported and

immersed in a fluid filled process chamber 12. *See Moxness*, Fig. 2. The transducer assembly 20, 22 is designed so that sonic energy is created by the ceramic transducer 20, intensified by the transmitter 22 and applied across the entire surfaces of both sides of the substrate 14 in a horizontal direction. *See Moxness*, Col. 3, ll. 62 - Col. 4, ll. 37, Fig.2. After the intensified sonic energy passes over the surfaces of the substrate 14, undesired reflection/bounce-back of the sonic energy is prohibited by providing a sonic wave absorbing and dissipating antechamber 30 in alignment with the sonic energy path. *See Moxness*, Col. 4, ll. 38-47, and Fig. 2. Critical design aspects of the Moxness system are disclosed to be: (1) a substrate chamber that is minimally sized to the dimensions of the substrate; and (2) exposing the entirety of the substrate surfaces to the intensified sonic energy. *See Moxness*, Col. 3, ll. 3-10.

As a general matter, Applicant is unsure as to the exact manner in which the Examiner contends one would modify the Moxness system to reposition the transducer assembly 20, 22 to be above or below the surface of the substrate 14. For example, is the transducer assembly 20, 22 to be positioned above or below the substrate 14 in a horizontal orientation (as oriented in FIG. 2) or in a vertical orientation? Moreover, is the modified position of the transducer assembly 20, 22 to be within the internal volume of the cleaning chamber 12 or built into the structure/walls of the chamber? Clarification is requested.

Nonetheless, it is Applicant's position that irrespective of the details of the modification, Moxness teaches away from all such modifications. First, as can be seen from Fig. 2 of Moxness, there is absolutely no room to position the transducer assembly 20, 22 in the internal volume of the substrate chamber 12 in any orientation. Such positioning would require the size of the process chamber to be substantially increased, thereby defeating one of the key aspects which the Moxness system is designed to achieve, a substrate chamber that is minimally sized to the dimensions of the substrate. *See Moxness*, Col. 3, ll. 3-10 and Fig.2. Thus, Moxness teaches away from such a modification.

Turning now to the concept of incorporating the transducer assembly 20, 22 into the structure/walls of the process chamber 12, such a modification is equally as problematic and unfeasible. First, if one were to position the transducer assembly 20, 22 in a horizontal

orientation in the wall either above or below the substrate 14, the intensified sonic energy would never come into contact with the substrate 14. Instead, the sonic energy would be generated and directed into the wall itself, thereby deflecting back into the transducer assembly 20,22 and causing interference. As discussed above, the entire purpose of the shape of the transmitter 22 of the Moxness transducer assembly is to intensify the sonic energy and apply the intensified sonic energy to the substrate 14. Thus, modifying the Moxness system so that the transducer assembly 20, 22 is incorporated into the wall/structure of the Moxness chamber in a horizontal orientation either above or below the substrate 14 would defeat the entire purpose of the Moxness system. Therefore, one skilled in the art would not be motivated to modify the Moxness system as such. In fact, Moxness teaches away from such a modification.

Finally, if one were to position the transducer assembly 20, 22 in a vertical orientation in the wall either above or below the substrate 14, the intensified sonic energy would only come into contact with a small portion of the substrate's 14 area. As a result, a majority of the substrate 14 would not be subjected to sonic energy at all while a small area of the substrate would be subjected to an intense amount of sonic energy. This defeats the goal of uniform processing. Moreover, Moxness itself teaches that it is desirable to expose the entirety of the substrate's surfaces to the sonic energy. Additionally, such a modification would also cause problems with sonic energy reflection because the transducer assembly 20, 22 would not be aligned with the sonic wave absorbing and dissipating antechamber 30. Therefore, one skilled in the art would not be motivated to modify the Moxness system so that the transducer assembly 20, 22 is in a vertical orientation in the wall either above or below the substrate 14. In fact, Moxness teaches away from such a modification.

For these reasons, it is believed that the rejections of claim 1 and claim 5 under 35 U.S.C. § 103 are improper. Accordingly, it is believed that all grounds of rejection have been traversed or obviated, and that the rejections should be withdrawn, and the application allowed.

Copies of all cases cited in this response are enclosed for the Examiner's convenience.

VERTE.032CPCCC1D

PATENT

Serial No. 10/726,774

Response to Final Action of March 15, 2006

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(Cite as: 37 C.C.P.A. 1026, 181 F.2d 1019)

▷

United States Court of Customs and Patent Appeals.
Application of JAPIKSE.
Patent Appeal No. 5634.

May 9, 1950.

Proceeding in the matter of the application of Bertrand Japikse for a patent relating to a hydraulic power press. The Board of Appeals of the United States Patent Office affirmed the rejection by the Primary Examiner of ten claims, embraced in applicants' application serial No. 511,619 and applicant appealed. The Court of Customs and Patent Appeals, Garrett, Chief Judge, held that the claims were properly rejected for lack of invention over prior art.

Decision affirmed.

West Headnotes

[1] Patents ¶111

291k111 Most Cited Cases

Where examiner's statement following appeal to Board of Appeals of the Patent Office, after listing certain patents as references in customary manner, contained phrase "added as of interest" followed by listing of certain documents which had not been referred to previously in prosecution of the application, but decision of board showed that it regarded claims rejectable independently of the added matter and applicant made no request for reconsideration of such matter before prosecuting appeal to the board, board's consideration of added matter was not error.

[2] Patents ¶66(2)

291k66(2) Most Cited Cases

Where alleged inoperativeness of a basic reference patent could be cured by an obvious matter of design, reference patent would not be eliminated on ground of inoperativeness.

[3] Patents ¶66(1.17)

291k66(1.17) Most Cited Cases

Certain claims of application for patent relating to hydraulic power press were properly rejected as unpatentable in view of prior art.

Patents ¶328

291k328 Most Cited Cases

1,150,153. Cust. & Pat.App. Cited.

Patents ¶328

291k328 Most Cited Cases

2,009,487. Cust. & Pat.App. Cited as reference.

****1019 *1026** Ernest F. Mechlin, Washington, D.C. (George F. Vaia, Washington, D.C., of counsel), for appellant.

E. L. Reynolds, Washington, D.C., for Commissioner of Patents.

W. W. Cochran, Washington, D.C., on the brief as former solicitor for Patent Office.

Before GARRETT, Chief Judge, and JACKSON, O'CONNELL and JOHNSON, JJ.

GARRETT, Chief Judge.

This is an appeal from the decision of the Board of Appeals of the United States Patent Office affirming the rejection by the Primary Examiner of ten claims, numbered 3, 4, 5, 6, 11, 12, 13, 14, 15, and 20, embraced in appellant's application, serial No. 511,619 for patent entitled 'for Hydraulic Power Press.'

Eight claims stand allowed.

Rejection of the claims on appeal was based by the tribunals of the Patent Office on alleged lack of invention over prior art.

***1027** Of the allowed claims two (Nos. 16 and 19)

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were granted by the board, the examiner's rejection of them being reversed.

Claim 6 was regarded by the board as illustrative of the appealed claims. It reads: '6. In a hydraulic power press, the combination of, supporting means in vertical alignment with a movable platen, a pair of transfer tables spaced on opposite sides of ****1020** said supporting means and carrying transfer plates, means depending from said transfer plates and arranged to pass through an aligned opening in said supporting means, fluid pressure responsive means connected to said depending means for moving said transfer plates on to said supporting means, and means disposed adjacent each end of said opening for contact by said depending means upon completion of movement of said transfer plates in one direction so as to initiate the pressing cycle of the hydraulic power press.'

In his statement following the appeal to the board, the Primary Examiner made an explanation of appellant's disclosure, which we reproduce, omitting the figures of the drawings as indicated by asterisks but retaining the designating numerals and letters, it being thought that they will aid those skilled in the art to visualize the essential features of the apparatus:

'The subject matter is a hydraulic press equipped with a plurality of transfer tables so that work pieces may be properly positioned on one or more of such tables while another table is beneath the movable press platen.

'The press comprises a stationary platen or bolster **2** * * * from which rise columns **4** * * * for guiding the upper, movable, platen **5**. Spaced about the bolster **2** are four tables designated A, B, C, D * * * . Each table comprises a rectangular framework supporting, at its upper end, two rows of rollers **18** * * * on which rests a transfer plate **19**. The bottom of each plate **19** is slightly above the top of bolster **2**, for a reason which will soon appear.

'Depending from each plate **19** is a guide plate **20** * * * guided for longitudinal movement by rails **28** and **32**. Plate **20** is adapted to enter a slot **21** or **21a**

* * * in bolster **2** in order to properly position it with respect to the bolster. Plates **20** of tables A and C enter slot **21**, while slot **21a** receives plates **20** of tables B and D.

'Each table housing supports a cylinder **36** * * * whose piston rod **37** is connected to a yoke **40** having spaced, horizontal, legs **41**, **42** which support a shaft **46** on which is freely rotatable a double gear **47** * * * . The large gear portion **48** of gear **47** engages a rack **50** carried by plate **20**, while the small gear portion **49** engages a rack **51** carried by the table housing; As fluid is supplied to cylinder **36** to cause rod **37** and yoke **40** to move in one direction or the other, small gear **49** rolls on rack **51** and causes large gear **48** to move rack **50** and transfer plate **19** at higher speed toward or away from bolster **2**.

'The bolster carries a series of roller mechanisms **52a**, **52b** * * * . As shown * * * , each such mechanism comprises a roller **62** held up by a spring **60** so that its top extends above bolster **2** in position to just contact the bottom of a plate **19** when the latter is moved over the bolster and off its conveyor rollers **18**. When platen **5** lowers to engage the work on plate **19**, the latter will descend to engage bolster **2**, compressing springs **60** and lowering rollers **62**.

***1028** 'Roller mechanisms **52a** serve tables B and D, while mechanisms **52b** serve tables A and C. The bottom of each plate **19** carries grooves **19a** so placed that the plate will not contact rollers **62** of the other set of plates.

'Since tables B and D are narrower than the bolster * * * the end portions of slot **21** would be exposed and liable to catch foreign matter when the plate on table B or D is on the bolster **2**. To prevent this, the bolster top at the ends of slot **21** is recessed as at **63** * * * to receive lids **64** which are urged by springs **77** to a position covering slot **21** * * * . When the plate **19** on table A or table C starts to move over the bolster, a cam **72** * * * carried by guide plate **20** engages rollers **71** * * * and moves lids **64** out of the way to permit plate **20** to enter slot **21**. This lid structure is included in all the allowed claims.

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'Each table has three limit switches 78, 80 and 81. Pressing switch 78 starts the associated plate 19 moving toward the bolster 2. A lug 84 on a yoke 40 then opens switch 80 to cause plate 19 to gradually slow down. Just before plate 19 stops, some part on it contacts lever 32 to cause switch 81 to complete a circuit resulting in platen 5 **1021 starting a pressing cycle. Just before platen 5 returns to its upper position, it operates a limit switch 85 * * * resulting in movement of plate 19 off the bolster 2.'

Certain question of a preliminary nature are discussed in appellant's brief before us to which attention should be given at this point.

[1] We first consider a contention that a question of jurisdiction is involved.

During the prosecution of the application before the Primary Examiner five patents were cited as references. The five were specifically named in a decision of the Primary Examiner rendered March 24, 1945, and were repeated in a decision by him rendered April 10, 1946, which he declared to be his final decision.

The patents so cited are:

Ernst, et al., 2,009,487, July 30, 1935, 10071; Graham, 2,241,344, May 6, 1941, 11338; MacMillin, 2,259,576, Oct. 21, 1941, 11338x; Cannon, 2,317,440, Apr. 27, 1943, 11338; Dievers, 2,332,135, Oct. 19, 1943, 11338.

From that final decision appellant took appeal to the Board of Appeals.

The examiner's statement following the appeal to the board lists the above references in the customary manner and then says:

Added as of Interest:

Arndt, 2,247,464, July 1, 1941, 37-157; Strauss, 1,150,153, Aug. 17, 1915, 74- 422, '507 Mechanical Movements'- Figs. 118- pages 32 and 33- Copy in Division 14, Published 1908 by Brown & Seward, 261 Broadway, N.Y.C.

The document so 'added as of interest' do not appear to have been referred to previously in the prosecution of the application and it was alleged that the board erred in considering them 'as qualifying references.'

*1029 It is not clear to us just what the examiner meant by the phrase 'added as of interest.' The documents do not seem to have been given any particular weight in the decisions.

In the examiner's statement the added documents are referred to first in connection with the rejection of claims 11 and 13, which claims, however, the statement asserted, had been rejected 'on either Cannon or Dievers' before any reference was made to the added matter, it being said: ' * * * Claim 11 attempts to distinguish from the references only in stating that 'floating' means within the table structure moves the table cover or transfer plate. This expression is broad and does not distinguish from swinging cylinder 36 of Dievers of (or) from Cannon's rack and pinion cover drive. Claim 13 attempts to distinguish by the functional statement that the drive means is constructed to move less than the cover or transfer plate. * * * Cannon uses reduction gearing between motor 55 and pinion 54, and could use speed increasing gearing instead without invention, since no more than design or choice is here involved. * * * These claims actually attempt to distinguish over the references by a broad and functional recital of applicant's double rack and pinion structure, which structure the examiner stated was well known (paper No. 5), and in which statement applicant concurred, (paper No. 6, pages 7 and 8).'

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equivalents

The documents are referred to again in the examiner's statements in connection with rejected claims 12, 14, 15, and 20, after they had been expressly rejected on the patent to Cannon alone, 'from which,' says the statement, 'they differ only in varied recitals of the double rack and pinion drive of the transfer tables. * * * No more skill would be required to replace Cannon's geared transfer plate drive with this well-known double rack and pinion drive.'

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The matter 'added as of interest' was referred to by the tribunals of the Patent Office only in connection with rejected claims 11, 12, 13, 14, 15, and 20, which embraced the so-called 'rack and pinion' feature.

A careful study of the decision of the board seems to us fairly to show that it regarded claims 11, 12, 13, 14, 15, and 20 rejectable independently of the added matter to which it referred as 'the three secondary references.' In fact, no allusion to such matter is found in its approval of the Primary Examiner's rejection of claims 11 and 13 on Cannon or Dievers, and such allusion **1022 as is made to it in approving the rejection of claims 12, 14, 15, and 20 on Cannon appears to have been made in order to make clear the point, i.e., 'mounting a rack of a double rack and pinion driving means on one of the beaver tails,' which led the board to reverse the Primary Examiner's rejection of claim 16.

It is noted that three different examiners had to do with the case in the Patent Office. It was prosecuted before one to the point of *1030 final decision. Another prepared the statement following the appeal to the board and added the matter under discussion. A third filed a brief in reply to the brief filed before the board on behalf of appellant, which latter brief is not included in the record before us.

We think it regrettable that if, the examiner who prepared the statement following the appeal to the board was of opinion that the prior art cited in the decision declared final by the first examiner was so deficient that the citation of additional art was required, he did not indicate that opinion clearly, because much confusion might have been avoided thereby. We, however, do not find that any question as to the jurisdiction of the board may properly be invoked under the facts stated, nor do we find any error in such consideration as the board gave the added matter.

It is our view that if appellant regarded the added matter a new ground of rejection and desired reconsideration of such matter by the Primary Examiner he should have made request for such reconsideration before prosecuting further the

appeal to the board. See *In re Archbold, Jr.*, 151 F.2d 350, 33 C.C.P.A. Patents 725. We do not find wherein appellant has been deprived of any legal right.

[2] Another question discussed in the brief for appellant relates to the operativeness of the device disclosed in the Cannon patent. The board said of this: ' * * * Appellant objects to the use of this (the Cannon) patent as a reference because of alleged inoperativeness. Such inoperativeness concerns the shape of the beaver tails * * * . Appellant contends that as illustrated it is impossible for them to either enter or leave the space between the two rollers * * * unless the end of the transfer table is lifted. While this appears to be true if the patent drawings are considered as drawn to scale, patent drawings are not necessarily scale drawings. The Examiner argues that it is only a matter of design to extend the curvature of the beaver tails about a sufficiently large arc and to allow enough clearance to permit the beaver tails to ride into and out of the space between the rollers. Since the cure for the alleged inoperativeness is obvious, it cannot be held to affect the validity of the Cannon patent as a reference.'

We do not find in the reasons of appeal any allegation of error as to the holding so made, and, it may be said, we discern no reason for disagreeing with such holding.

The Cannon patent is the basic reference cited against all the appealed claims. Appellant seeks to eliminate it as to all the claims upon the ground of inoperativeness. For the reasons stated, we hold that it may not be eliminated.

We paraphrase the description given by the Primary Examiner of the Cannon disclosure:

*1031 Cannon shows a press base adapted to cooperate with a movable platen which is operated by hydraulic pistons in opposite directions. On the base is a bed adapted to cooperate with six tables, each of which supports a die carrier. Each carrier runs on rollers guided in channels. When a carrier is positioned on the bed, its rollers rest on plugs

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which are yieldingly supported. When the movable platen engages the die on one of the carriers, plug springs will yield to permit the bottom of that carrier to rest on the bed. On the bottom of each carrier is a longitudinal rack with which a pinion engages, the pinion being driven through reduction gearing by a reversible electric motor, whereby the carrier may be moved toward or from the bed. At its ends each rack carries depending beaver tails which cooperate with rollers on a pinion to start and stop the racks gradually. These beaver tails enter slots in the bed to guide the carrier in its movement over the bed. Each carrier mounts a series of dogs **1023 adapted to coact with limit switches to control its operation.

[3] Claim 3 reads as follows: '3. In a hydraulic power press, the combination of, supporting means in vertical alignment with a movable platen, oppositely disposed transfer tables having covers of substantially the same horizontal extent as said supporting means, movable means carrying said covers on to and away from said supporting means, means depending from said covers and arranged to pass through an aligned opening in said supporting means, and means disposed in alignment with said opening for contact by said depending means to start the pressing operation of said hydraulic press.'

In the brief of the Solicitor for the Patent Office it is pointed out that the claim reads on Cannon except as to the final limitation reading 'means disposed in alignment with said opening for contact by said depending means to start the pressing operation of said hydraulic press.' As to that limitation it was held that there would be no invention in shifting the starting switch disclosed by Cannon to a different position since the operation of the device would not thereby be modified.

We find no error in the holding as to claim 3.

Claim 4 reads: '4. In a hydraulic power press, the combination of, supporting means in vertical alignment with a movable platen, a plurality of pairs of transfer tables spaced about said supporting means and carrying transfer plates, means depending from said transfer plates and arranged to

pass through aligned openings in said supporting means, resiliently mounted roller means in said supporting means for receiving said transfer plates, and fluid pressure responsive means connected to said depending means for moving said transfer plates on to said roller means.'

*1032 Claim 4 was rejected on Cannon in view of Graham and Ernst, et al., of MacMillin and also further rejected on Dievers in view of Graham.

It is noted that the first portion of the claim down to the word 'resiliently' is substantially the same as the first portion of claim 3 and is readable on Cannon in the same manner.

It appears that Cannon provides resiliently mounted plugs upon which his transfer plates rest instead of resiliently mounted rollers which latter, however, are shown by the Graham Patent. Both Ernst, et al., and MacMillin disclose fluid pressure means for moving transfer plates and it is not thought that any invention would reside in substituting such means for the electric motor shown by Cannon.

It is unnecessary to consider the rejection on Dievers in view of Graham, which was introduced for the first time in the statement following the appeal to the board.

The board approved with little comment the rejection of claims 5 and 6 (see 6, supra) by the Primary Examiner who in his statement concerning them said: 'Claims 5 and 6 aggregate the features specified in claims 3 and 4, namely, the fluid actuating of the transfer plates, the specific location of the starting switch and the roller supporting for the tables. These claims stand rejected on Cannon in view of Graham and Ernst (et al.) or MacMillin for reasons stated against claim 4. The relocation of Cannon's switch A-42 so that it may be operated by beaver tail 62 instead of by dog A-2 is devoid of invention.'

We think it obvious that claim 5 and 6 were properly rejected.

Further discussion of appealed claims 11, 12, 13,

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14, 15, and 20 is not thought to be necessary. The decision of the board is affirmed.

***1026** Affirmed.

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END OF DOCUMENT

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United States Court of Customs
and Patent Appeals.
Application of Karl F. KUHLE.
Patent Appeal No. 75-602.

Dec. 4, 1975.

Appeal was taken from a decision of the Board of Appeals of the Patent and Trademark Office affirming the examiner's rejection of claims in application for patent. The Court of Customs and Patent Appeals, Miller, J., held that claims defining a portable electrical instrument for measuring amount of moisture in soil by detecting conductivity of soil were unpatentable on ground that use of a spring-loaded contact and placement thereon, deletion of switch member, and limitation of electrical connection to metfigure rapping would have been obvious to one of ordinary skill in art.

Affirmed.

West Headnotes

Patents ↪16.33

291k16.33 Most Cited Cases

(Formerly 291k18)

Claims defining a portable electrical instrument for measuring amount of moisture in soil by detecting conductivity of soil were unpatentable on ground that use of a spring-loaded contact and placement thereon, deletion of switch member, and limitation of electrical connection to metallic wrapping would have been obvious to one of ordinary skill in art. 35 U.S.C.A. § 103.

Patents ↪328(2)

291k328(2) Most Cited Cases

2,328,853, 2,437,134. Prior art.

*553 Keith D. Beecher, Los Angeles, Cal., for appellant.

Joseph E. Nakamura, Sol., R. V. Lupo, Assoc. Sol.,
Washington, D.C., for Commissioner of Patents.

MILLER, Judge.

This appeal is from the decision of the Board of Appeals of the Patent and Trademark Office affirming the examiner's rejection of claims 5 and 6 of application serial No. 314,180, filed Dec. 11, 1972, for 'Portable Moisture Meter.' We affirm.

The Invention

Claim 5 defines a portable electrical instrument for measuring the amount of moisture in the soil by detecting the conductivity of the soil. The smaller the conductivity, the drier the soil. Figure 1 of the drawings illustrates the device.

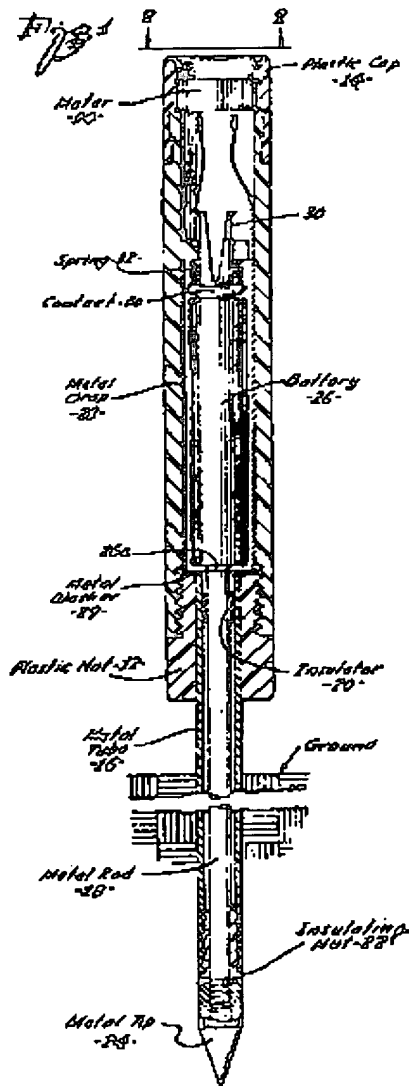
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*554 Claim 5 reads as follows:

5. An instrument for measuring the moisture content of soil within a predetermined range, including: a tubular casing formed of electrically insulating material; an electrically conductive tubular member mounted in said casing in coaxial relationship therewith and extending out from one end of said casing; an electrically conductive rod mounted coaxially within said electrically

conductive tubular member; electrically insulating bushing means interposed between said rod and said electrically conductive tubular member to position said rod in said tubular member and to insulate said rod from said tubular member; a pointed tip member of electrically conductive material secured to the end of said rod in electrical contact therewith and in axial alignment with said tubular member and axially separated and insulated therefrom by said bushing means; a battery mounted in said tubular casing in axial alignment with said rod and having an electrode at one end of thereof engaging the end of said rod; a spring-loaded contact mounted in said casing engaging the battery at the other end thereof and urging said battery electrode against said end of said rod; an electric meter mounted at the other end of said casing and observable through said other end; and electric connections in said casing connecting said meter to said spring-loaded contact and to said electrically conductive tubular member.

Dependent claim 6 reads:

6. The instrument defined in claim 5, in which said electric connections include a metallic wrapping positioned around the inner surface of said tubular casing (sic casing) spaced from said battery and in contact with said electrically conductive tubular member.

Proceedings Below

The claims were rejected under 35 U.S.C. s 103 as unpatentable over the Smith patent, No. 2,437,134, issued Mar. 2, 1948, and the Sherrard patent, No. 2,328,853, issued Sept. 7, 1943.

As stated by the board, the examiner's position was that Smith discloses a moisture meter which operates on basically the same principle and in the same manner as appellant's device, measuring moisture content by the conductivity between two electrodes inserted into the soil being tested; further, that in view of the Sherrard teaching of a battery having a spring-loaded contact mounted in a tubular casing used to measure the change in conductivity between two electrodes inserted into liquids (e.g. antifreeze liquids), it would have been



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obvious to one skilled in the art to utilize such a battery and spring-loaded contact in the Smith device. The board also noted that use of a spring-loaded contact in the manner claimed would be obvious because this was 'notoriously old with the common flashlight,' and that the particular placement provided no novel or unexpected result. In response to appellant, the board said that deletion of elements, such as the switch of Smith or Sherrard, thereby deleting their function, was a matter of simplification and an obvious expedient. With respect to the limitation in claim 6 of the 'metallic wrapping,' the board found no novel or unexpected result over the metallic connections used in the references.

OPINION

With respect to claim 5, appellant contends that Smith does not show: (1) a battery mounted in axial alignment with the rod and having an electrode at one end contacting the rod; (2) a spring-loaded contact engaging the battery and urging the battery electrode against the rod; and (3) an electrical circuit connecting the meter to the spring-loaded contact and to the electrically conductive metal tube. Further, appellant argues that Sherrard does not show a spring-loaded contact, but moves his entire battery to effectuate electrical contact.

We agree with the board that, in view of Sherrard, it would have been obvious *555 to one of ordinary skill in the art to use a spring-loaded contact engaging one end of the battery. Sherrard's specification teaches:

The lower end of the tubular member has mounted therein the upper end of a bar formed of insulating material, having its upper end terminating within the body and provided with an electrical contact, a spring being supported on the upper end of the member and surrounding the contact and designed to support a number of dry cells within the upper end of the member, the upper end of the member having a threaded portion for receiving a plug provided with a cavity in its upper end for receiving a push button having at its lower end a contact member designed to engage the upper end of the cell, a light spring being provided for yieldably holding

the member in contact with the electrode of the cell. (Drawing numbers omitted.)

We also agree that the particular placement of the contact provides no novel or unexpected result. The manner in which electrical contact is made for Smith's battery would be an obvious matter of design choice within the skill of the art. See *Graham v. John Deere Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966); *In re Gazda*, 219 F.2d 449, 42 CCPA 770 (1955). As the board pointed out, use of a spring-loaded contact in the manner claimed is well known with the common flashlight. see *In re Howard*, 394 F.2d 869, 55 CCPA 1121 (1968).

We further agree with the board that deletion of the switch member (and other elements) found in Smith and Sherrard, thereby deleting their function, was an obvious expedient. *In re Keegan*, 51 CCPA 1344, 331 F.2d 315, 141 USPQ 512 (1964). Appellant contends that the electrical circuit of his device is not completed until the electrodes are inserted into the soil, so that a switch is not needed. However, the circuits in both Smith and Sherrard are also incomplete until the electrodes are inserted into the material to be tested.

We are persuaded by the Solicitor's argument that the Smith drawing would lead one to believe that the battery is in axial alignment with the rod and that this is well known with the common flashlight, with its axially contained battery. We are further persuaded by the Solicitor's argument that the electrical circuit connecting the meter to the spring-loaded contact and to the metal tube is similar to that disclosed by Smith, whose specification teaches:

The electrical connections for my meter are shown best in Fig. 2. It will be noted that a dry cell is provided, the positive terminal of which is attached to a connector leading to the coil of a milliammeter. The other terminal of the milliammeter is grounded . . . furnishing electrical connection to the metal tube. (Drawing numbers omitted.)

With respect to claim 6, we agree with the board that the limitation of the 'metallic wrapping,' which

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is really a lining of the tube, presents no novel or unexpected result over the metallic connections used in the references. Use of such a means of electrical connection in lieu of those used in the references solves no stated problem and would be an obvious matter of design choice within the skill of the art. In re Launder, 222 F.2d 371, 42 CCPA 886 (1955); Flour City Architectural Metals v. Alpana Aluminum Products, Inc., 454 F.2d 98 (8th Cir. 1972); National Connector Corp. v. Malco Manufacturing Co., 392 F.2d 766 (8th Cir.), cert. denied, 393 U.S. 923, 89 S.Ct. 254, 21 L.Ed.2d 259 (1968). See Graham v. John Deere Co., supra.



Finally, we cannot agree with appellant that the collective teachings of Smith and Sherrard may not properly be considered. The devices of the references are, like appellant's device, used to measure conductivity between two electrodes inserted into the material being tested. A person of ordinary skill in the conductivity-measuring device field would be expected to be familiar with the references.

*556 Accordingly, the decision of the board is affirmed.

Affirmed.

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END OF DOCUMENT

Westlaw.

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C

United States Court of Customs and Patent Appeals.
Application of Alexander M. WRIGHT.
Patent Appeal No. 7218.

April 15, 1965.

Proceeding on application for patent. The United States Patent Office Board of Appeals, Serial No. 688,459, affirmed the rejection of claims, and the applicant appealed. The Court of Customs and Patent Appeals, Rich, J., held that claims 15-28 of application for patent for 'Afterburner Fuel Regulator Responsive to Compressor Discharge Absolute Pressure' would not have been rejected on ground of inadequate disclosure; claims 15-24 were properly rejected as unpatentable over the art.

Partly reversed and partly affirmed.

West Headnotes

[1] Patents ↪16(1)

291k16(1) Most Cited Cases
(Formerly 291k18)

The test of obviousness is to be applied to each set of facts as it arises.

[2] Patents ↪66(1.19)

291k66(1.19) Most Cited Cases

[2] Patents ↪101(5)

291k101(5) Most Cited Cases

Claims 15 through 28 of application for patent for invention relating to fuel control apparatus for aircraft turbojet engines having an "afterburner" combustion chamber, supplemental to and on discharge side of, a "main" combustion chamber for reheating exhaust gases and thereby increasing jet reaction thrust of engine when maximum power output is desired, such as on take-off, should not have been rejected on ground of inadequate disclosure; claims 15-24 were properly rejected as

unpatentable over the art. 35 U.S.C.A. § 103.

Patents ↪328(2)

291k328(2) Most Cited Cases

2,742,755, 2,841,957, 2,764,868, 2,909,896, 2,555,445, 2,675,674, 2,700,275, 2,581,275. Cited as prior art.

****761 *1186** A. M. Prentiss, West Hartford, Conn., for appellant.

Clarence W. Moore, Washington, D.C. (Jere W. Sears, Washington, D.C., of counsel), for Commissioner of Patents.

Before RICH, Acting Chief Judge, MARTIN, SMITH and ALMOND, Judges, and Judge WILLIAM H. KIRKPATRICK. [FN*]

FN* United States Senior District Judge for the Eastern District of Pennsylvania, designated to participate in place of Chief Judge WORLEY, pursuant to provisions of Section 294(d), Title 28, United States Code.

RICH, Judge.

This appeal is from the decision of the Patent Office Board of Appeals, adhered to on reconsideration, affirming the rejection of claims 15 through 28 of application serial No. 688,459, filed October 7, 1957, for 'Afterburner Fuel Regulator Responsive to Compressor Discharge Absolute Pressure.' No claims are allowed.

The Invention

The invention relates to fuel control apparatus for aircraft turbojet engines having an 'afterburner' combustion chamber, supplemental to and on the discharge side of, a 'main' combustion chamber for reheating exhaust gases and thereby increasing the jet reaction thrust of the engine when maximum

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power output is desired, such as on take-off. As explained in the specification--

'Engines of this type usually comprise, as principal elements, an air inlet, an air compressor, one or more main combustion chambers having a series of burner nozzles through which the main fuel supply is fed, a gas turbine, a supplementary combustion chamber also having a series of burner nozzles through which the supplementary fuel supply is fed, and a tail pipe for discharging the combustion gases to the atmosphere in the form of a jet. Associated with the engine are a main fuel supply system, including a fuel pump and control apparatus, for delivering fuel to the main combustion chambers, and a supplementary fuel supply system, including a fuel pump and control apparatus, for delivering fuel to the **762 afterburners in the afterburner combustion chamber. This invention is particularly concerned with the afterburner fuel control apparatus which controls the afterburner fuel flow as a preselected function of the compressor discharge absolute pressure.'

The specification goes on to say the 'invention consists in the combination and arrangement of elements hereinafter described and illustrated * * *.' (Emphasis ours.)

Appellant's Figure 1, reproduced below since one of the two issues presented by the appeal has a direct bearing thereon, diagrammatically *1187 shows a turbojet aircraft engine with its associated main fuel supply and afterburner fuel supply system, including appellant's 'control' apparatus, and the principal connections therebetween.

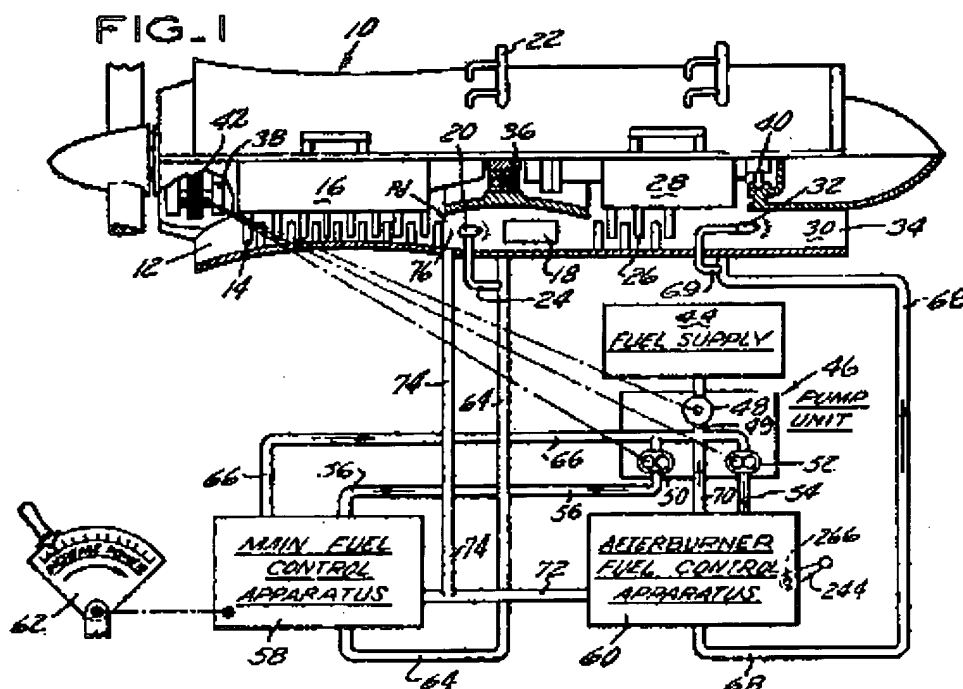
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The main elements are: a supporting casing 10, an air inlet 12, a multistage air compressor 14 having a rotor shaft 16, one of a number of main combustions chambers 18, one of a corresponding number of main fuel burner nozzles 20, connected to a generally circular fuel manifold 22 by means of a conduit 24, a multistage turbine 26 having a rotor shaft 28 connected to compressor rotor shaft 16; an afterburner combustion chamber 30, one of a plurality of afterburner fuel nozzles 32, a tail pipe 34 for discharging combustion exhaust; a center bearing 36 and end bearing 38 and 40 supported by casing 10, and a gear train 42 connected to shaft 16 for operating the fuel pumps and other accessories at a speed proportional to the engine speed.

The fuel supply system includes a supply tank 44 connected to a fuel pump unit 46 comprising a centrifugal pump 48, connected by a conduit 49 in series with a pair of parallel, positive displacement pumps 50 and 52, which supply fuel through

conduits 56 and 54, respectively, to a main fuel control apparatus 58 and an afterburner fuel control apparatus 60. All three pumps 48, 50, **763 and 52 are connected to gear train 42 as shown by the broken lines, whereby they are driven at a speed proportional to engine speed. Fuel, controlled by a pilot's manual control 62, is supplied by main fuel control 58 through conduits *1188 64 and 24 to nozzles 20 in the main combustion chamber 18 for the operation of turbine 26; and fuel not required by the turbine is returned from main fuel control 58, through a conduit 66, to conduit 49 on the inlet side of pump 50.

Similarly, fuel at a regulated rate is supplied by the afterburner fuel control 60, through conduits 68 and 69, to afterburner nozzles 32; and fuel not required for afterburning is returned from afterburner fuel control 60, through a conduit 70, to conduit 49 on the inlet side of pump 52.

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Appellant's brief says:

'As shown in Fig. 1 of the drawings * * * applicant's invention, broadly comprehended, comprises an afterburner fuel control apparatus 60, for regulating the fuel flow to afterburners 32 in afterburner combustion chamber 30, which is used in operative association with a main fuel control apparatus 58 for regulating the fuel flow to main burner nozzles 20 in main combustion chamber 18.

'One of the basic requirements for fuel control apparatus for turbojet engines is that the total fuel flow to the engine should always bear a preselected, definite, scheduled ratio to the weight (mass?) air flow through the engine, under all operating conditions; and since the total fuel flow to the engine consists of the fuel flow to the main burners 20, and the fuel flow to the afterburners 32, the regulating of the main fuel flow by main control apparatus 58 must be fully coordinated with the regulation of the afterburner fuel flow by afterburner control apparatus 60. This coordination of fuel flows is obtained by the * * * arrangement of elements * * * shown in Fig. 1 * * *.

'Since one of the cardinal features of applicant's invention is regulation of the fuel flow to the main combustion chamber and the afterburner, in accordance with the rate of mass air flow through the engine, and since compressor discharge absolute pressure is a measure of said air flow, it is essential that said pressure be the sole control parameter that automatically regulates said fuel flow, because any modification of said pressure would cause said fuel flow to be not in accordance with said air flow. Since applicant's invention is particularly concerned with apparatus for regulating the fuel flow to the afterburner, the main fuel control apparatus is involved only to the extent that it cooperates in association with the afterburner control apparatus (as shown in Fig. 1), the details of construction of the main control apparatus form no part of applicant's invention, beyond the arrangement whereby (as shown in Fig. 1), it automatically regulates the fuel flow in accordance with same control parameter as the afterburner fuel control (i.e. compressor discharge absolute pressure).

Accordingly, the details of construction of the main fuel control apparatus will not be further described herein since they may be any combination and arrangement of elements that operate to regulate the fuel flow to the main combustion chamber in accordance with the compressor discharge absolute pressure, as for the example of a combination and arrangement of pertinent elements similar to those of the afterburner fuel control apparatus, as hereinafter described, and illustrated in the drawings * * *.'

The afterburner fuel control apparatus 60, the drawing of which is full of complex detail and not reproduced here since **764 it is believed *1189 unnecessary for an understanding of the issues, comprises three principal parts: (1) a fuel by-pass valve which maintains a constant metering head across a variable-area, contoured, fuel metering valve; (2) the metering valve itself, together with its positioning mechanism for varying the flow area through the valve as a preselected function of the compressor discharge absolute pressure; and (3) a shut-off valve actuated by a solenoid and by a manual transfer valve, which cuts off all fuel flow to the afterburners when they are not in use.

More specifically, the afterburner fuel flows from the pump 52 to the metering valve, which is positioned as a function of the compressor discharge by means of a 'nutcracker amplifier' arrangement. Any change in discharge pressure from the compressor is transmitted to a chamber in a bellows, which is opposed by a second evacuated chamber in the bellows, whereby causing movement of the bellows partition separating the two chambers. The signal thus created is transmitted to the 'nutcracker amplifier,' an arrangement of two parallel tracks or 'links,' one fixed and the other rotatable over a fulcrum in accordance with (a) tension on an adjustable spring connected to the one end of the track and (b) movement of a rod connecting the other end of the track with the bellows. The amplifier actuates a rod, which moves a servo valve, which, in turn, controls the flow of fluid to one or the other side of a piston attached to the metering valve by means of a shaft. Movement of the piston thereby positions the metering valve,

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and the direction of movement of the piston is determined by the direction of movement of the servo valve. The direction of movement of the servo valve depends on whether an increase or a decrease in compressor discharge pressure has occurred. The amplifier also responds to a feedback signal from the metering valve, thereby establishing an equilibrium in the system after each change in compressor discharge pressure.

A pressure drop regulating valve maintains the pressure drop across the metering valve constant by bypassing a certain amount of fuel around the pump 52 via conduit 70. The pressure downstream of the metering valve is sensed and the regulating valve then operates to apply the necessary correction, i.e. bypass, to establish a constant pressure differential across the metering valve. A detailed description of the structure of the pressure drop regulating valve, as well as the shut-off valve mechanism, will not be set forth.

One point of novelty in the invention is alleged to reside in the metering valve being contoured 'so as to give the same difference in the rate of fuel flow for the same difference in compressor discharge absolute pressure (P(d)), throughout the operating range of the engine * * *.' *1190 A further point of novelty is described in the specification as follows:

'One of the principal novel features of my improved afterburner fuel control is the much higher sensitivity in the response of the metering valve positioning means to changes in compressor discharge absolute pressure, at low values than at high values of said pressure * * *. This sensitivity performance is one of the striking features of the type of nutcracker amplifier shown in Figure 2; the advantage being approximately equal percentage sensitivity over the operating range of the fuel control.'

The Claims

Base claim 15, upon which the remaining claims on appeal depend, reads:

'15. For use with an aircraft turbojet engine having

an air compressor, a main combustion chamber, a gas turbine, and afterburner combustion chamber for reheating the exhaust gases from said turbine, a fuel pump for supplying fuel to said main and afterburner chambers, and a main fuel control for automatically regulating the supply of fuel to said main combustion chamber solely in **765 accordance with the unmodified absolute discharge pressure of said compressor; an afterburner fuel control apparatus for controlling the total flow of fuel from said pump to said afterburner chamber solely in accordance with said pressure, comprising a fuel flow metering valve, first means, actuated by said pressure, for varying the flow area through said valve solely in accordance with varying values of said pressure throughout the operating range of said apparatus; and second means for maintaining a constant metering head across said valve, throughout the operating range of said apparatus.'

Claim 16 in part recites 'wherein said second means includes a by-pass valve for returning fuel not passing through said metering valve to the inlet side of said pump * * *,' and certain functional features of said bypass valve.

Claim 17 identifies 'a movable element' as part of said 'first means,' e.g., the bellows partition, and also includes a 'third means, actuated by said element, for varying the position of said (metering) valve * * *.'

Claim 18 is dependent on claim 17 and further qualifies the 'third means' by reciting means for making the ratio of incremental change in the flow area of the metering valve to the original value of the flow area a constant for a given increment of change in the position of the valve, throughout the range of movement of the valve.

Claim 19 is dependent on claim 18 and recites the contoured metering valve producing a flow which is a straight-line function of the compressor discharge pressure.

Claim 20 is dependent on claim 17 and recites a 'fourth means' within the third means 'for amplifying the ratio between the movement of said element and

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the resulting movement of said valve.'

*1191 Claim 21 is dependent on claim 20 and further qualifies the fourth means to include 'means for restoring the equilibrium of the system * * * after any movement of said valve by said element.'

Claims 22-24 are all dependent on claim 19 and add limitations relating to various manual adjustments, termed in the specification 'factory adjustments' and a 'Field Slope Adjustment.' These adjustments do not change during flight, but do affect the overall performance of the aircraft while in flight.

Claims 25-28 have been rejected solely on the ground they include matter for which there is allegedly no basis in the original disclosure. At one time these claims were deemed allowable, but the allowance was withdrawn by reason of an amendment to base claim 15.

The New Matter Rejection

During prosecution, in an effort to overcome a rejection on prior art, appellant amended claim 15 to include the terms 'solely' and 'unmodified' (first occurrences only) in describing the manner of fuel control for the main combustion chamber. The examiner raised the objection of lack of antecedent basis in the original disclosure, and an issue arose which the board discussed as follows:

'The essential issue with respect to the rejection of the claims as based on an inadequate disclosure, and the rejection of the claims on the prior art relates to the nature of the control parameter. It is strongly urged by appellant that the limitations relating to the feature that the fuel controls are automatically regulated 'solely in accordance with the unmodified absolute discharge pressure of said compressor' represent the exact nature of appellant's control parameter that determines the basic philosophy and fundamental mode of operation of his invention.

'We agree with the Examiner that the original specification and drawings do not show any details

of the main fuel control whereby only unmodified absolute discharge pressure **766 regulates the main fuel supply. While the original disclosure did state that the fuel is regulated in accordance with the rate of mass air flow through the engine as measured by the compressor discharge absolute pressure, we find no statement that it is solely so regulated and that other parameters, such as fuel pressure do not modify it. The Examiner has called attention to the patent to Lee, which shows that additional control parameters may be used in a fuel control.

'While the prior art does not show the main fuel control automatically regulated solely in accordance with the unmodified absolute discharge pressure, we do not give this limitation any patentable weight since the limitations of 'solely' and 'unmodified' are not supported in the original disclosure. There being no basis in the original disclosure for the limitations which are now urged to be critical, we do not consider such limitations as being of patentable significance in the claims of this application.'

*1192 We believe the examiner and board have misconstrued at least two portions of the original disclosure.

First, Fig. 1 shows the discharge pressure of compressor 14 to be transmitted unmodified from chamber 76 through conduits 74 and 72 to both the main fuel control 58 and the afterburner fuel control 60. No alterations to this pressure are shown. The drawing communicates as clearly as possible the idea of transmitting unmodified compressor discharge pressure to the respective fuel control apparatuses. The figure clearly shows that the only control entity, other than discharge pressure, is a manual control 62, which is applied to the main fuel control apparatus 58, but this feature has nothing to do with appellant's invention. Of course, the aircraft is subject to various pilot controls, including fuel control, at times such as on take-off and landing, but appellant's invention is concerned with regulating the fuel as a function of mass air flow through the compressor during flight. As the mass air flow changes, for example by a change in

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altitude or for any other reason, the rate of fuel flow to the main burner and to the afterburner is adjusted accordingly. Furthermore, this 'regulating' is shown to be automatic since it occurs without the aid of external manual influences.

Second, we believe the board erred in misconstruing the following passage from the specification, which all agree constituted a portion of the original disclosure:

'Both the main and afterburner fuel controls are connected by conduits 72 and 74 with the compressor discharge chamber 76, whereby the fuel supplied by both controls is regulated in accordance with the rate of mass air flow through the engine, as measured by the compressor discharge absolute pressure (P(d)) in chamber 76.'

We understand this statement to say that the fuel flow to the engine from both control apparatuses 58 and 60 is automatically regulated (as distinguished from the manual control 62) by the same control parameter and that this parameter is compressor discharge absolute pressure. Since the compressor discharge pressure is transmitted unmodified from chamber 76 to both control apparatuses 60 and 58, it follows that fuel flow to the engine from both apparatuses is automatically regulated by unmodified, compressor discharge absolute pressure.

We believe further that appellant's specification as filed discloses that fuel flow to the engine is automatically regulated solely by unmodified, compressor discharge absolute pressure. Whereas the board fails to find any statement that it is so regulated and that other parameters, such as fuel pressure, do not modify it, we fail to find that such other parameters are at all intended to be included. To assume that parameters, other than compressor discharge absolute pressure, may *1193 control the fuel flow in appellant's invention, is to indulge in unwarranted **767 speculation. Appellant's drawings do not show them, the specification does not describe them or even suggest that they are present, and we are not willing to conclude that they are. To do so would be asking future applicants to expressly negate all features which, although

perhaps common in the art, are not intended to be part of the disclosure. Considering the over-all operation of the invention, as originally disclosed in the specification and drawings, we agree with appellant that the regulation of fuel flow solely by unmodified, compressor discharge pressure was inherently disclosed therein.

In summary, finding no basis in the original specification or drawings to indicate that appellant intended either fuel control apparatus to be regulated, as opposed to being controlled which is what manual device 62 does, in any way other than automatically and by any parameter other than unmodified compressor discharge absolute pressure, we hold that these concepts were inherently disclosed in the application as filed and the rejection of claims 15-28 on grounds of inadequate disclosure is reversed.

An ancillary matter is the question of the propriety of the examiner's and board's refusal [FN1] to enter appellant's proposed amendment of December 16, 1960. The full text of the change sought to be effected by this amendment does not appear in the printed record, and some confusion exists as to the relationship of this amendment to an amendment filed by appellant on October 3, 1960. The October 3 amendment also contained additions to the specification, some or all of which are printed in the record as part of the specification and which the solicitor's brief, in a footnote, refers to as 'prejudicial to the Commissioner's new matter position * * *.' Under the circumstances, we are unable to rule specifically on entry of the December 16, 1960 amendment per se. However, we have studied the four passages, indicated in the solicitor's brief as having been stipulated as not part of the original specification, but which nevertheless appear in the record, and conclude that these passages do not add 'new matter' to the specification. We reach this conclusion primarily for the reasons above indicated in regard to the amendment of base claim 15 to recite the terms 'solely' and 'unmodified.' We feel that the amendments to the specification merely render explicit what had been implicitly disclosed originally, and, while new language has certainly

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been added, we are not prone to view all new 'language' ipso facto as 'new matter.'

FN1. The examiner's refusal led to the filing of a Petition to the Commissioner, which was denied. Ultimately a second Petition to the Commissioner was filed, in response to which the matter was said to be fully covered by section 608.04(c) of the Manual of Patent Examining Procedure, which says, in effect, that where the alleged new matter is 'introduced into' or 'affects' the claims, thus necessitating their rejection, the question becomes an appealable one, and should not be considered on petition even though that new matter has been introduced into the specification.

*1194 The Art Rejection

Claims 15-24 were rejected as unpatentable over various combinations of the following prior art:

Hooker	2,555,445	June	5, 1951
Mock	2,581,275	Jan.	1, 1952
Lee II	2,675,674	Apr.	20, 1954
Chandler et al.	2,700,275	Jan.	25, 1955
Davies et al.	2,742,755	Apr.	24, 1956
Watson et al.	2,764,868	Oct.	2, 1956
Thorpe et al.	2,841,957	July	8, 1958
Porter	2,909,896	Oct.	27, 1959

The principal rejection is that of base claim 15 'as being unpatentable over Chandler in view of Davies.'

Chandler shows a turbojet engine arrangement generally similar to that in appellant's Fig. 1. The respective fuel flows to the engine from the main fuel control and from the afterburner fuel control are regulated in accordance with the pressure rise across the air compressor. In the afterburner fuel control, the fuel flow to the engine is regulated by a valve which functions in accordance with changes in this pressure rise. The ****768** pressure

differential across the valve itself is maintained constant by means of another valve whose operation is subject to this pressure differential and a constant rate spring.

Davies is directed to a fuel system for pilot burners in gas-turbine engine reheat equipment and shows controlling the total fuel flow to an afterburner in response to compressor discharge pressure which, in turn, is shown to be a function of the mass air flow through the engine. Appellant agrees with this analysis of Davies but contends, inter alia, that Davies does not thereby show total fuel flow to his

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afterburner in accordance with compressor discharge pressure, presumably meaning 'solely' in accordance with this pressure.

In regard to the art rejection, the board said:

'The rejection of the claims as being unpatentable over the prior art is based essentially on the combination of the Chandler et al. and Davies et al. patents. The principal distinction over the Chandler et al. patent resides in the fact that in Chandler et al. the main fuel and afterburner fuel controls are automatically actuated in response to the difference between the pressure discharge and inlet pressures, whereas in the instant application appellant uses the parameter of absolute compressor discharge pressure to control fuel flow. The Examiner held that the distinction between these two control parameters was not patentable especially in view of Davies et al. Davies et al. show the expedient of controlling afterburner fuel flow by absolute compressor discharge pressure.

'We agree with the Examiner that it would not be patentable to utilize absolute compressor discharge pressure as suggested by Davies et al. in lieu of the pressure rise control signal in Chandler et al.'

*1195 In response, appellant argues in his main brief that the substitution of absolute compressor discharge pressure, as employed by Davies, for the pressure rise across the compressor as employed by Chandler to automatically regulate the fuel flow to the afterburner would not result in a fuel control apparatus meeting the terms of the claims. We note that all the comparisons there made, showing novelty of the present invention, are made between the claims on appeal and Davies. Appellant also argues that one of the cardinal features of his invention is a 'marked simplification of afterburner fuel controls, in comparison with most of the prior art' by eliminating fuel pressure as a parameter for regulating fuel flow to an afterburner, as employed by Davies for example. It is not until we approach the end of the brief that we find any attempt to establish patentability over Chandler, the primary reference. Appellant there says:

'(5) The first substantial step in simplifying after burner controls was achieved by the Chandler patent of record, which eliminated fuel pressure as a parameter for regulating afterburner fuel flow, by using a combination of air pressures (i.e. the pressure rise across the compressor), to regulate after burner fuel flow.

The second substantial step in simplifying afterburner fuel controls was achieved by applicant's invention, which eliminated compressor inlet air pressure as a factor in the parameter for afterburner fuel regulating, thus leaving only one air pressure line from the compressor to the regulator.

'(6) The Chandler patent of record, is assigned to the same assignee as the application involved in the appeal at bar, and applicant was familiar with the operation and advantage achieved by the Chandler fuel control. The objective of further simplifying Chandler's control was clearly not to be **769 found in turning back to prior art devices, such as Davies, which used fuel pressure, as well as compressor pressure, as parameters to regulate afterburner fuel flow, since such prior art controls were obviously far more complicated than Chandler's control.'

First, it is of no moment that the Chandler patent has been assigned to the assignee of the subject application or that appellant was actually familiar with the operation and advantage achieved by the Chandler fuel control. Second, we do not understand appellant's contention that simplification of Chandler's control could not be found in turning 'back' to devices such as Davies for the Davies patent was applied for in 1950, nearly two years after Chandler filed, and issued approximately 15 months after the Chandler patent issued. In any case, both patents are prior art and must be considered together. To be sure, Davies' device may be more complicated than Chandler's in certain respects, but we believe appellant has overlooked other disclosures in Davies which, in our opinion, suggest the claimed invention.

Appellant says, in effect, that following the 'first substantial step' in simplifying fuel controls taken

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(Cite as: 52 C.C.P.A. 1185, 343 F.2d 761)

by Chandler, that of eliminating fuel pressure as a parameter, the next substantial step was the present invention which, stripped to its fundamentals, is apparatus using absolute *1196 discharge pressure as a sole parameter in regulating fuel flow, and that this latter step was unobvious.

We cannot agree with the contention that appellant's invention was unobvious. Davies says:

'It is known that when a sonic velocity occurs in the turbine nozzles of a gas-turbine engine, the mass flow of air which passes through the engine is proportional to the absolute delivery pressure of the compressor of the engine of the turbine inlet temperature is constant * * *.' Davies goes on to say:

'Since in preferred arrangements according to the invention, the fuel delivery to the pilot burner is proportional to the absolute delivery pressure of the compressor, it is also proportional to the mass flow of air flowing through the engine * * *.'

While appellant is correct in contending that incorporating the Davies device into the Chandler device would not provide every feature of the claimed device, we believe this contention fails to meet the issue before us. The Patent Office position is that the claimed invention would be obvious to one of ordinary skill in the art with the Chandler and Davies patents before him. Hence, we are concerned with what these patents disclose, more particularly what they suggest, without regard to what the respective patentees consider to be their inventions. The issue is not whether appellant's apparatus has been 'fully met' but rather whether the claimed apparatus has been clearly suggested. We believe it has, since the quoted passages from Davies tell one of ordinary skill in the art that compressor discharge pressure can be used to regulate automatically fuel flow in accordance with mass air flow through the engine.

Finally we believe the word 'solely' does not so limit claim 15 as to render it patentable. The afterburner fuel control of Chandler is governed by two parameters, pressure differential across the

compressor and tail pipe temperature. We agree with the solicitor that 'the elimination of the temperature parameter for the afterburner fuel control of Chandler * * * together with its tailpipe safeguarding function, would be an obvious expedient,' but we hasten to add that this finding is based upon a determination of obviousness under section 103 and not upon a mechanical rule, which the solicitor would have us extract from In re Karlson, 311 F.2d 581, 50 CCPA 908, about the omission of an element and its function from a known combination being obvious if the remaining elements perform the same function as **770 before. Language to this effect in Karlson was never intended to short-circuit the clear wording of 35 U.S.C. 103. The same reasoning applies to the word 'solely' in describing the regulating of fuel flow to the main combustion chamber.

*1197 Claims 16 and 17 were rejected 'for substantially the same reasons as claim 15 * * * in view of Thorpe who teaches using a by-pass valve * * *,' the specific features of this valve being set forth and allegedly teaching appellant's modifications of the apparatus defined by claim 15. Claims 18, 19, and 24 were rejected for substantially the same reason as claim 17 'in view of Mock'; claims 20 and 21 were rejected for substantially the same reasons as claim 17 'in view of Watson'; and claims 22 and 23 were rejected for substantially the same reasons as claim 19 'in view of Hooker.' The Lee patent was used to provide a more detailed analysis of a main fuel control apparatus, Chandler's main fuel control having been indicated as corresponding to that of Lee's. The Porter reference appears to have been dropped after the final rejection. Each additional reference was used to provide either a teaching or suggestion of the particular modification of the base claim, or to show that such modification constitutes 'merely a matter of design choice.'

The examiner's answer says:

'Applicant relies on the patentability of the base claim 15 to determine the patentability of claims 16-24 over the art as applied. Throughout the prosecution of the case applicant has followed this

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(Cite as: 52 C.C.P.A. 1185, 343 F.2d 761)

same approach and this is taken by the examiner to be an acquiescence to the propriety of the application of these additional references as used against claims 16-24. Accordingly, no additional comment is directed by the examiner as concerns the art rejection of claims 16-24.'

While we note that appellant strongly disagrees with the examiner that he has at any time, up to and including the present appeal, acquiesced in the propriety of treating all of claims 15-24 together as regards their patentability over the art, we also note that appellant has failed to come forth with an affirmative argument as to why any or all of claims 16-24 are patentable, independently of the patentability of claim 15. Some effort along these lines is demonstrated in appellant's brief before the board, but these arguments for the most part boil down to a reliance on the patentability of base claim 15.

We certainly agree with appellant, however, that claims 16-24 do not claim the additional feature, but instead define combinations, the combinations being made up of the apparatus set forth in the base claim and the additional feature. Patentability depends on the obviousness of the overall combinations, not of the individual elements of that combination for they are not being claimed. We do not agree with appellant, however, that these features are sufficient to render the otherwise unpatentable combination defined by claim 15 patentable.

[1][2] Appellant, at oral argument, relied heavily on our decision in *In re Flint*, 330 F.2d 363, 51 CCPA 1230, and suggests *1198 that we examine the present appeal in light of our decision and rationale there. In *Flint* the invention related to a releasable hold open device for doors which the examiner and board found to be 'functionally equivalent' to the prior art device. The appellant therein contended that such a finding, even if correct, did not necessarily render the claimed device unpatentable since the statutory test is the obviousness, under 35 U.S.C. § 103, of the novel subject matter and not whether the invention is 'functionally equivalent' to the art device. We

agreed with that contention, saying:

'Assuming arguendo, that the pin ejection system of appellant and the releasable spring arm taught by Pollack are 'functionally equivalent,' it does not follow that the former would be 'obvious' to one of ordinary skill in view of the latter. On the **771 contrary, we see no suggestion in Pollack's leaf spring arm and stud construction to employ a spring-loaded pin directly in the pivot socket even though the solicitor characterizes such construction as 'a slightly different disposition of the pin member' which results in a combination which is 'merely the obvious equivalent of that of Pollack.' We therefore do not find obviousness.'

In *Flint* we also said, citing *In re Scott*, 323 F.2d 1016, 51 CCPA 747, that 'Expedients which are functionally equivalent to each other are not necessarily obvious in view of one another.' On the other hand they might be, and, of course, where 'functional equivalence' is not found, they may or may not be obvious. The test of obviousness, therefore, is to be applied to each set of facts as it arises. Under the facts of this case, we hold that claims 15-24 define subject matter which is obvious within the meaning of section 103.

The rejection of claims 15-28 on the ground of inadequate disclosure is reversed and the rejection of claims 15-24 as unpatentable over the art is affirmed.

*1186 Modified.

52 C.C.P.A. 1185, 343 F.2d 761, 145 U.S.P.Q. 182

END OF DOCUMENT

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2003 WL 23014547 (Bd.Pat.App & Interf.)

(Cite as: 2003 WL 23014547 (Bd.Pat.App & Interf.))

*1 THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

Board of Patent Appeals and Interferences

Patent and Trademark Office (P.T.O.)

EX PARTE BORIS E. MAKUTONIN, FRANK G. OLIVERIO AND MATTHEW J. ZDINAK

Appeal No. 2002-1058

Application 09/228,856

Heard: January 21, 2003

WOOD, HERRON & EVANS

2700 CAREW TOWER

CINCINNATI, OH 45202

Before STAAB, MCQUADE, and NASE

Administrative Patent Judges

MCQUADE

Administrative Patent Judge

DECISION ON APPEAL

Boris E. Makutonin et al. originally took this appeal from the final rejection of claims 1 through 21 and 24 through 36. As the appellants have since canceled claim 15, [FN1] the appeal now involves claims 1 through 14, 16 through 21 and 24 through 36, all of the claims presently pending in the application.

THE INVENTION

The invention relates to a "rotary knife and transfer apparatus used in connection with a pouch form, fill, and seal machine, the knife capable of severing pouches from a pouch train and selectively discharging pouches for downstream cartoning or other packing or handling" (specification, page 1). Representative claim 1 reads as follows:

1. A pouch handling apparatus for severing individual pouches from a pouch train and transferring individual pouches from said train to separate downstream pouch handling devices, said apparatus comprising:

a rotary pouch severing knife rotating about an axis;

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at least two conveyors for receiving individual pouches after severing thereof by said knife;

pouch transfer apparatus comprising at least two drop off points for delivering pouches to at least one of said two pouch conveyors; and

wherein at least one of said conveyors is a direct drop bucket conveyor operably oriented to transport severed pouches from one drop off point to a downstream pouch handling apparatus;

said direct drop bucket conveyor extending from said transfer apparatus in a direction perpendicular to said axis.

THE PRIOR ART

The references relied on by the examiner to support the final rejection are:

Scarpa et al. (Scarpa)	5,220,993	Jun. 22, 1993
Focke et al. (Focke)	5,784,855	Jul. 28, 1998
Dieterlen	5,829,332	Nov. 3, 1998

THE REJECTIONS

Claims 1 through 14, 16 through 21 and 24 through 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Scarpa.

Claims 1 through 3 and 7 through 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Scarpa in view of Dieterlen.

Claims 4 through 6, 12 through 14, 16 through 21 and 24 through 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Scarpa in view of Dieterlen and Focke.

*2 Attention is directed to the appellants' main and reply briefs (Paper Nos. 14 and 16) and to the examiner's answer (Paper No. 15) for the respective positions of the appellants and the examiner with regard to the merits of these rejections. [FN2]

DISCUSSION

I. The rejection based on Scarpa alone

Scarpa discloses a pouch cutting and transfer apparatus (see Figure 1) comprising an index wheel 13 for receiving a train or strip 17 of pouches from an upstream pouch form, fill and seal machine, a cutting wheel 11 which cooperates with the index wheel to cut the pouch train into individual pouches 18, a transfer wheel 21 for receiving the individual pouches from the index wheel, and a multiple lane pouch conveyor 19 for receiving the pouches from the transfer wheel and

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transporting them to a downstream packaging (e.g., cartoning) apparatus. The index and cutting wheels include blades 14 and 12 which cooperate in scissor-like fashion to sever the individual pouches from the pouch train or strip, and the index and transfer wheels include suction heads 15 and 22 for holding and releasing the individual pouches as they travel from the index wheel to the transfer wheel and then to the multiple lane pouch conveyor. Figure 1 shows that the multiple lane pouch conveyor extends parallel to the axes of the index and transfer wheels.

As conceded by the examiner (see pages 3 through 5 in the answer), Scarpa fails to respond to the limitations in independent claim 1, and the corresponding limitations in independent claims 16, 24, 35 and 36, requiring at least two conveyors for receiving individual pouches after severing wherein at least one of the conveyors is a direct drop bucket conveyor extending from the transfer apparatus in a direction perpendicular to its axis. Notwithstanding these deficiencies, the examiner, citing St. Regis Paper Co. v. Bemis Co. Inc., 549 F.2d 833, 193 USPQ 8 (7th Cir. 1977) and In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) for the proposition that the mere duplication and rearrangement of the working parts of a device involve only routine skill in the art, concludes that it would have been obvious at the time the invention was made to a person having ordinary skill in the art "to include a duplication of [Scarpa's] transfer wheel 21 and additional conveyors for the transfer of pouches to separate locations" (answer, page 4) and "to include/substitute well known conveyors of any type (including direct drop bucket conveyors) in replacement or combination of [Scarpa's] multilane conveyor 19 ... [and] to align the conveyors in various positions" (answer, page 5).

Rejections based on 35 U.S.C. § 103(a) must rest on a factual basis. In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 177-78 (CCPA 1967). In making such a rejection, the examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. Id.

*3 In the present case, the examiner fails to advance any factual basis to supply the admitted deficiencies of Scarpa vis-a-vis the subject matter recited in independent claims 1, 16, 24, 35 and 36. Instead, the examiner attempts to bridge Scarpa's evidentiary gaps by resort to so-called mechanical or per se rules of obviousness allegedly established by the St. Regis and Japikse cases. Such rules do not exist, however, and the reliance thereon by the examiner to establish obviousness under § 103(a) is improper. See In re Ochial, 71 F.3d 1565, 1570, 37 USPQ2d 1127, 1132 (Fed. Cir. 1995); In re Wright, 343 F.2d 761, 769-70, 145 USPQ 182, 190 (CCPA 1965).

Hence, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of independent claims 1, 16, 24, 35 and 36, and dependent claims 2 through 14, 17 through 21 and 25 through 34, as being unpatentable over Scarpa.

II. The rejection based on Scarpa in view of Dieterlen

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Dieterlen discloses a rotary knife apparatus disposed between an upstream pouch form, fill and seal machine and a downstream cartoning machine. The rotary knife apparatus 40 consists of a major knife hub 50 having a plurality of blades 56 and a minor knife hub 52 having a plurality of blades 60, which blades cooperate to shear individual pouches 42 from a pouch web 54. The major knife hub also includes a plurality of suction cups 68 for grasping and carrying the individual pouches and releasing them at a predetermined number of drop off points onto a product conveyor 44. The product conveyor may take the form of a direct drop bucket conveyor which runs perpendicular to the axis of the major knife hub (see column 2, line 66, through column 3, line 5; column 6, lines 18 through 24; and Figures 7A-7D and 10A-10D).

Again allowing that Scarpa lacks response to the above noted limitations in claim 1, the examiner relies on Dieterlen to conclude that it would have been obvious at the time the invention was made to a person having ordinary skill in the art "to include the direct drop bucket conveyor as taught by Dieterlen in the apparatus of Scarpa et al. to transfer pouches in stacks" (answer, page 6).

In short, even if Dieterlen would have suggested the use of a direct drop bucket conveyor extending in a direction perpendicular to Scarpa's knife axis, there is simply nothing in the collective teachings of these references which also would have suggested the inclusion of at least two conveyors in the Scarpa apparatus as required by claim 1.

Therefore, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of claim 1, and dependent claims 2 through 3 and 7 through 11, as being unpatentable over Scarpa in view of Dieterlen.

III. The rejection based on Scarpa in view of Dieterlen and Focke

*4 Focke discloses a cigarette packaging machine comprising a band conveyor 15, a discharge conveyor 19 composed of upper and lower belts 20 and 21, a star wheel 22 for passing the packs from the band conveyor to the discharge conveyor, and a transfer wheel 26 for removing flawed packs from the band conveyor.

Even if Focke is assumed to be analogous art (the appellants urge that it is not), its disclosure of a cigarette packaging machine does not cure the above noted shortcomings of Scarpa and Dieterlen with respect to the independent claims on appeal.

Accordingly, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of claims 4 through 6, 12 through 14, 16 through 21 and 24 through 36 as being unpatentable over Scarpa in view of Dieterlen and Focke.

SUMMARY

The decision of the examiner to reject claims 1 through 14, 16 through 21 and 24 through 36 is reversed.

REVERSED

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2003 WL 23014547 (Bd.Pat.App & Interf.)

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BOARD OF PATENT APPEALS AND INTERFERENCES

LAWRENCE J. STAAB

Administrative Patent Judge

JOHN P. MCQUADE

Administrative Patent Judge

JEFFREY V. NASE

Administrative Patent Judge

FN1. The appellants have also since amended claim 1.

FN2. In the final rejection (Paper No. 7), claims 1 through 14 also stood rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. As this rejection has not been restated or otherwise mentioned in the examiner's answer, we assume it has been withdrawn. See *Ex parte Emm*, 118 USPQ 180, 181 (Bd. App. 1957).

2003 WL 23014547 (Bd.Pat.App & Interf.)

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1998 WL 1736165 (Bd.Pat.App & Interf.)

(Cite as: 1998 WL 1736165 (Bd.Pat.App & Interf.))

*1 THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

Board of Patent Appeals and Interferences

Patent and Trademark Office (P.T.O.)

EX PARTE DAVID P. MCCRANE

Appeal No. 98-2149

Application No. 08/651,991 [FN1]

NO DATE REFERENCE AVAILABLE FOR THIS DOCUMENT

Flehr Hohbach Test Albritton & Herbert

Suite 3400 Four Embarcadero Center

San Francisco, CA 94111

Before MEISTER, FRANKFORT, and BAHR

Administrative Patent Judges

MEISTER

Administrative Patent Judge

ON BRIEF

DECISION ON APPEAL

David P. McCrane (the appellant) appeals from the final rejection of claims 1-18, the only claims present in the application.

We REVERSE.

The appellant's invention pertains to a protective device for use in active sports of the type having a cushioning pad with a replaceable wear cap and to a method of unfastening the wear cap from the cushioning pad. Independent claims 1 and 17 are further illustrative of the appealed subject matter and copies thereof may be found in the appendix to the brief.

The reference relied on by the examiner is:

Robinson 4,599,747 Jul. 15, 1986

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1998 WL 1736165 (Bd.Pat.App & Interf.)

(Cite as: 1998 WL 1736165 (Bd.Pat.App & Interf.))

Claims 1-8 stand rejected under 35 U.S.C. § 103 as being unpatentable over Robinson. The examiner notes that Robinson teaches the attachment of a replaceable wear cap 40 to a cushioning pad 38 by means of hook and loop-type fasteners. Thereafter, the examiner concludes that:

The placement of the fasteners in any pattern or direction could readily be determined through routine experimentation based on the direction of applied forces and magnitude of adhesion desired. Note that it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, [181 F.2d 1019] 86 USPQ 70 [CCPA 1950]. In the instant case, the modification of the pattern in which the VELCRO[®] fasteners are applied between the cushioning pad (38) and replaceable wear cap (40) is considered an obvious expedient readily determined based on routine experimentation of the desired adhesion level. Any such pattern, including plural strips with the hooks placed at an angle with respect to each other is considered obvious if a different adhesion level is desired.

With regard to claims 17-18, the use of a[n] edged object such as a screwdriver or other blade-like tool to unfasten the cap is considered an obvious expedient with the proposed modification of the Robinson Patent. Blade-like tools such as screwdrivers are commonly used to pry open a variety of objects. [Answer, pages 4 and 5.]

We will not support the examiner's position. In rejecting claims under 35 U.S.C. § 103 the examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993); In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Only if that burden is met does the burden of coming forward with evidence or argument shift to the applicant. Id. If the examiner fails to establish a prima facie case, the rejection is improper and will be overturned. In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

*2 According to the specification, hook and loop-type fastening devices for attaching a replaceable wear cap to a cushioning pad wherein the hook ends are randomly oriented are known, but that such fastening devices are not strong enough to securely hold the wear caps in place when subjected to certain forces (see, generally, pages 2 and 3). In order to overcome the deficiencies of the prior art:

A replaceable wear cap is provided together with a fastening structure which is releasably carried between the inner surface of the wear cap and the outer surface of the cushioning pad. The fastening structure comprises a cooperating pair of first and second layers. The first layer is comprised of a material having a plurality of loops. The second layer is formed into segments each of which is comprised of a material having a plurality of hooks. The hooks of each segment have distal ends which point substantially unidirectionally so that when the hooks interengage with the loops the segment has a maximum resistance to force components vectored opposite the direction that the hook ends point. The hooks are released by the method of moving the blade-like portion of a thin flat tool in the direction the hook ends point along the length of the interface between the hooks and loops. [[Specification, pages 4 and 5; emphasis added.]

Independent claims 1 and 17, each expressly require at least first and second segments having unidirectionally oriented hook ends wherein the hook ends on one

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segment point in a direction which diverges from the direction the hook ends point on the other segment. In order to satisfy these limitations, the examiner relies on Robinson and states that the orientation of the hook ends and the placement of the segments "could readily be" determined by routine experimentation based on the direction of applied forces and magnitude of adhesion desired. We must point out, however, that obviousness under § 103 is a legal conclusion based on factual evidence (see In re Fine, supra,) and the mere fact that the prior art could be modified would not have made the modifications obvious unless the prior art suggested the desirability of the modification (see, e.g., In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)). Robinson shows nothing more than what the appellant on pages 2 and 3 of the specification has admitted to be old in the art. That is, Robinson simply shows a replaceable wear cap that is attached to a cushioning pad by means of a hook and loop-type fastener 42. There is no disclosure therein of unidirectionally oriented hook ends, much less unidirectionally oriented hook ends that are mounted on first and second segments in such a manner that the direction of orientation of the hook ends of the respective segments diverge at a predetermined angle relative to one another as claimed. Thus, Robinson does not provide a factual basis for concluding that unidirectionally oriented hook ends mounted on first and second segments in the claimed manner would have been obvious.

*3 The examiner's reliance upon the decision in In re Japikse, supra, is misplaced inasmuch as, in the facts of that particular case, the court found that the mere shifting of a part to a different position did not result in a device which operated any differently than the prior art. Here, however, not only is more than mere "shifting" involved, but the appellant's device clearly overcomes the described deficiencies of the prior art. ★

With respect to claims 17 and 18, the examiner has additionally noted that blade-like tools such as screwdrivers are commonly used to pry open a variety of objects. However, the mere fact that this might generally speaking be the case, does not provide a sufficient factual basis for concluding that the claimed method (which requires unfastening the above-noted first and second segments with unidirectionally oriented hook ends) would have been obvious within the meaning of 35 U.S.C. § 103. See In re GPAC Inc, 57 F.3d 1573, 1582, 35 USPQ2d 1116, 1123 (Fed. Cir. 1995) and In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967).

The decision of the examiner to rejection claims 1-18 under 35 U.S.C. § 103 based on the reference to Robinson is reversed.

REVERSED

BOARD OF PATENT APPEALS AND INTERFERENCES

JAMES M. MEISTER

Administrative Patent Judge

CHARLES E. FRANKFORT

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1998 WL 1736165 (Bd.Pat.App & Interf.)

(Cite as: 1998 WL 1736165 (Bd.Pat.App & Interf.))

Administrative Patent Judge

JENNIFER BAHR

Administrative Patent Judge

FN1. Application for patent filed May 21, 1996.

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1997 WL 1883840 (Bd.Pat.App & Interf.)

(Cite as: 1997 WL 1883840 (Bd.Pat.App & Interf.))

*1 THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

Board of Patent Appeals and Interferences

Patent and Trademark Office (P.T.O.)

EX PARTE STUARDO A. ROBLES, THANH PHAM AND BANG C. NGUYEN

Appeal No. 1997-0350

Application No. 08/191,384 [FN1]

NO DATE REFERENCE AVAILABLE FOR THIS DOCUMENT

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Before KIMLIN, JOHN D. SMITH and HANLON

Administrative Patent Judges

KIMLIN

Administrative Patent Judge

ON BRIEF

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-16, 20 and 22-32, all the claims remaining in the present application. Claim 1 is illustrative:

1. A method of cleaning unwanted film deposition from a throttle valve mounted on a vacuum chamber for regulating gas pressure in said chamber, comprising the steps of:

positioning said throttle valve juxtaposed to said vacuum chamber; and
flowing at least one cleaning gas into said vacuum chamber at a temperature and pressure in contact with said throttle valve for a length of time such that said unwanted film deposition is removed from said throttle valve.

The examiner relies upon the following reference as evidence of obviousness:

Law et al. (Law) 4,960,488 Oct. 2, 1990

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1997 WL 1883840 (Bd.Pat.App & Interf.)

(Cite as: 1997 WL 1883840 (Bd.Pat.App & Interf.))

Appellants' claimed invention is directed to a method of cleaning a throttle valve employed in a vacuum deposition system. The method entails positioning the throttle valve in juxtaposition to the vacuum chamber rather than downstream from the shut-off valve. According to appellants, the claimed arrangement eliminates the need of completely disassembling and manually cleaning the throttle valve after approximately 500 to 1,000 deposition cycles (see pages 4 and 5 of the present specification).

Appealed claims 1-16, 20 and 22-32 stand rejected under 35 U.S.C. § 103 as being unpatentable over Law.

Upon careful consideration of the opposing arguments presented on appeal, we find ourselves in agreement with appellants that the prior art cited by the examiner fails to establish a prima facie case of obviousness for the claimed subject matter. Accordingly, we will not sustain the examiner's rejection.

The examiner recognizes that Law, the sole reference relied upon, "does not disclose positioning the throttle valve juxtaposed to the deposition chamber" (page 2 of final rejection). [FN2] Notwithstanding this lack of disclosure in Law of appellants' departure from the admitted prior art, it is the examiner's position that the claimed positioning of the throttle valve would have been obvious to one of ordinary skill in the art since Law teaches that the disclosed localized etch proceeds at a faster rate than the extended etch which cleans the throttle valve. Based on this reference teaching, the examiner concludes that "faster etch cleaning of the throttle valve could be accomplished by bringing the throttle valve within range of the localized etching process" (sentence bridging pages 2 and 3 of the final rejection, emphasis added).

*2 While the examiner's reasoning has a certain, immediate logical appeal, it is well settled that the mere fact that the prior art could be modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984), and cases cited therein. Manifestly, it is quite evident from a review of appellants' specification that Law could be modified in the manner proposed by the examiner to arrive at appellants' claimed invention. Although it stands to reason that the throttle valve could be more effectively cleaned if positioned as close as possible to the vacuum chamber, such that the localized etching step of Law could act upon the throttle valve, the examiner has not established on this record that modifying the prior art arrangement of throttle valve and shut-off valve would have been an obvious option for one of ordinary skill in the art, particularly in terms of how such a rearrangement of the valves would affect the overall operation of the deposition process. In our view, the examiner has established no more than that it would have been obvious for one of ordinary skill in the art to try to modify the relative locations of Law's throttle and shut-off valves in order to determine the advantages and disadvantages of doing so.

The examiner cites In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) for the general proposition that "a mere shifting the location of parts" of an apparatus is a matter of obviousness for the skilled artisan (page 4 of Answer). However,

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our review of the case reveals no such proposition or rule of law. In relevant part, the court stated:

As to that limitation it was held that there would be no invention in shifting the starting switch disclosed by Cannon to a different position since the operation of the device would not thereby be modified.

We find no error in the holding as to claim 3. Japikse, 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950). We think it is quite clear that Japikse is limited to the facts of the case, i.e., the position of the starting switch is immaterial and, therefore, obvious, since the overall operation of the device would not be affected by such change. In the present case, the examiner has not established that the same could be said for changing the relative locations of Law's throttle and shut-off valves. *

In conclusion, based on the foregoing, we are constrained to reverse the examiner's rejection.

REVERSED

BOARD OF PATENT APPEALS AND INTERFERENCES

EDWARD C. KIMLIN

Administrative Patent Judge

JOHN D. SMITH

Administrative Patent Judge

ADRIENE LEPIANE HANLON

Administrative Patent Judge

FN1. Application for patent filed February 3, 1994.

FN2. The Examiner's Answer incorporated by reference the final rejection.

1997 WL 1883840 (Bd.Pat.App & Interf.)

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H

United States Court of Appeals, Federal Circuit.
 In re Michihiko OCHIAI, Taiiti Okada, Osami Aki,
 Akira Morimoto, Kenji
 Kawakita, and Yoshihiro Matsushita.
No. 92-1446.

Dec. 11, 1995.

Applicant appealed decision of the United States Patent and Trademark Office (PTO) Board of Patent Appeals and Interferences that affirmed examiner's rejection of certain claims of application for patent. The Court of Appeals held that: (1) claimed process was not obvious, and (2) obviousness determination requires fact-intensive comparison of claimed process with prior art rather than mechanical application of any per se rule.

Reversed.

West Headnotes

[1] Patents ⚡108

291k108 Most Cited Cases

When references cited by patent examiner fail to establish prima facie case of obviousness, rejection of claim is improper and will be overturned. 35 U.S.C.A. § 103.

[2] Patents ⚡16.14

291k16.14 Most Cited Cases

Process for preparing particular cephem compound having antibiotic properties was not prima facie obvious; process required use of new, nonobvious acid as one of the starting materials, and prior art references did not define class of acids the knowledge of which would render obvious the use of the specifically claimed acid. 35 U.S.C.A. § 103.

[3] Patents ⚡16(1)

291k16(1) Most Cited Cases

Obviousness determination requires fact-intensive

comparison of claimed process with prior art, rather than mechanical application of one or another per se rule. 35 U.S.C.A. § 103.

[4] Patents ⚡104

291k104 Most Cited Cases

When any applicant properly presents and argues suitable method claims, they should be examined in light of all relevant factors, free from any presumed controlling precedent. 35 U.S.C.A. § 103.

Patents ⚡328(2)

291k328(2) Most Cited Cases

3,167,549, 3,338,897, 3,360,515, 4,024,133, 4,024,134. Cited as prior art.

Patents ⚡328(2)

291k328(2) Most Cited Cases

4,098,888, 4,203,899, 4,298,606. Cited.

*1566 Harold C. Wegner, Foley & Lardner, Washington, D.C., argued for appellant. With him on the brief were Herbert I. Cantor and Douglas P. Mueller. Of counsel was Don J. Pelto.

Fred E. McKelvey, Solicitor, Office of the Solicitor, Arlington, Virginia, argued for appellee. Nancy J. Linck, Solicitor, Arlington, Virginia, Lee E. Barrett, Associate Solicitor, John W. Dewhurst, Associate Solicitor, Albin F. Drost, Deputy Solicitor and Richard E. Schafer, Associate Solicitor, represented the appellee.

Before ARCHER, Chief Judge, [FN*] MICHEL, Circuit Judge, and CARRIGAN, District Judge. [FN**]

FN* Judge Archer assumed the position of Chief Judge on March 18, 1994.

FN** Honorable James R. Carrigan, United States District Court for the District of Colorado, sitting by designation. Judge Carrigan retired from the federal judiciary

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effective August 19, 1995, and thus took no part in the disposition of this appeal.

PER CURIAM.

This appeal is from the July 8, 1992, decision of the United States Patent and Trademark Office (PTO) Board of Patent Appeals and Interferences (Board) affirming the examiner's rejection of claims 6 through 10 of Michihiko Ochiai *et al.*'s (collectively "Ochiai") application serial no. 07/462,492, claiming priority from parent application serial no. 642,356, filed December 19, 1975, now U.S. Patent No. 4,098,888 (methods for the manufacture of cepheems). *Ex parte Ochiai*, 24 USPQ2d 1265 (Bd.Pat.App. & Int.1992). The real party in interest is Takeda Chemical Industries, Ltd., the assignee of any patent issuing from the application.

The rejection of the above claims was predicated on an asserted view of the law of obviousness, per 35 U.S.C. § 103, in view of the combined teaching of six references. [FN1] Because, under the legally correct method for determining obviousness, the claimed process is not obvious in view of the cited prior art references, we reverse.

FN1. The references are as follows: U.S. Patent No. 3,167,549 to Hoover; U.S. Patent No. 3,338,897 to Takano *et al.*; U.S. Patent No. 3,360,515 to Takano *et al.*; U.S. Patent No. 4,024,133 to Cook *et al.*; U.S. Patent No. 4,024,134 to Gregson *et al.*; and Flynn, *Cephalosporin and Penicillins* 83-91 (1972). *Ochiai*, 24 USPQ2d at 1266.

The Invention

Ochiai's application is directed to a process for using an acyl side chain from a particular type of organic acid having a 2-aminothiazolyl group, and a particular type of amine to make a particular cephem compound having antibiotic properties. Claim 6, the principal claim on appeal, [FN2] is as follows:

FN2. Because Ochiai did not argue the

separate patentability of claims 6 through 10 before the Board, all the claims stand (or fall) together. *In re Dillon*, 919 F.2d 688, 692, 16 USPQ2d 1897, 1900 (Fed.Cir.1990) (in banc), *cert. denied*, 500 U.S. 904, 111 S.Ct. 1682, 114 L.Ed.2d 77, (1991); *In re Kroekel*, 803 F.2d 705, 709, 231 USPQ 640, 642-43 (Fed.Cir.1986).

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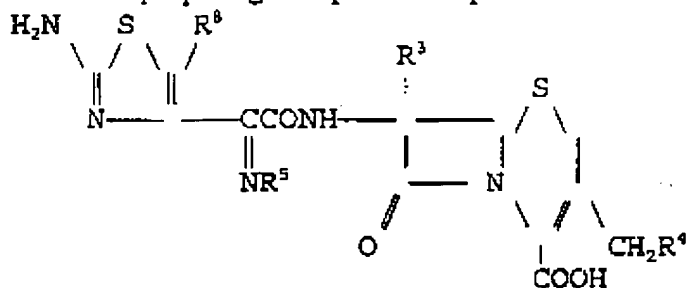
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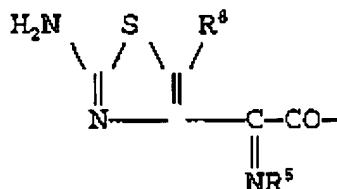
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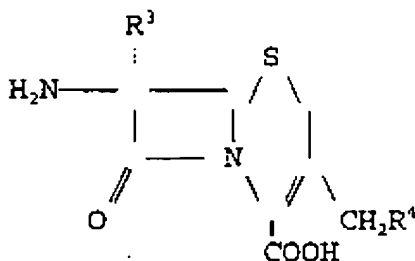
6. A process for preparing a cephem compound of the formula:



wherein R^3 is hydrogen or methoxy, R^4 is hydrogen or a residue of a nucleophilic compound, R^5 is hydroxyl or a protected hydroxyl, and R^8 is hydrogen or a halogen, or a pharmaceutically acceptable salt or ester thereof, which comprises introducing an acyl group of the formula:



wherein R^5 and R^8 are as defined above into the amino group of the molecule of the formula:



wherein R^3 and R^4 are as defined above or a salt or ester thereof.

Id. at 1266.

Ochiai's U.S. Patent No. 4,298,606 covers the cephem compound resulting from the process of claim 6, and Ochiai's U.S. Patent No. 4,203,899 covers the organic acid used in the process of claim

6. *Id.* at 1267. In other words, viewed as of the time the claimed process was invented, claim 6 recites a process of using a new, nonobvious acid to make a new, nonobvious cephem. The '606 and '899 patents, like the application at bar, claim priority from the December 1975 parent application.

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The Rejection

The examiner rejected claims 6 through 10 as obvious in light of the combined teaching of the six references noted above. All six references, as Ochiai acknowledges, teach the use of a type of acid to make a type of cephem by a standard acylation reaction with the very same amine recited in claim 6. The examiner explained the rejections thusly in his answer to Ochiai's appeal to the Board:

It must again be stressed that the citation of six references is to demonstrate convincingly that a *standard, conventional* process of preparing cephalosporin compounds *1568 is being claimed. The *only* difference between what is being claimed and the prior art is the selection of a *slightly* different acylation agent [*i.e.*, acid] to result in a slightly different final product. The *closest* prior art of the six references is represented by the Cook et al. 4,024,133 and, Gregson et al. patent 4,024,134. These two references use [*sic*, are] quite similar in their disclosure, Cook being the *most* [*sic*, more] relevant. Both of these references *generically* disclose the "2-amino-thiazolyl" group which appellants seek to introduce....

.....

The examiner recognizes that the *specific* "2 amino thiazolyl" moiety has *not* been *specifically* named in [the] Cook et al[.] patent. However, Cook et al. when viewed from the standpoint of one skilled in the art would recognize the use of "2-aminothiazolyl" if the final products sought were to contain this moiety. This merely states the obvious....

.....

The facts presented here are *identical* to those that occurred in the Durden decision (*In re Durden* [763 F.2d 1406] 226 USPQ 359). The *acylating* agent herein being used has been patented by appellants, see Ochiai et al. 4,203,899. The final products have also been patented by appellants which appellants acknowledge, brief page 5 footnote 4. The *only* difference between the facts in Durden those Durden [*sic*] and the instant situation is that appellants have not *admitted* on the record that

the process is obvious. Appellants seek to distinguish the Durden decision based on this difference. However, the Durden decision is believed to be controlling because of the *reasoning* used therein and not an admission or lack of admission of the obviousness of the process. The references discussed above abundantly demonstrate the *routineness* of the claimed process. Thus, the Court rejected the argument that a conventional manipulation or reaction was *unobvious* "notwithstanding the specific starting material or resulting product or both, is not to be found in the prior art".

(Emphasis in original). Importantly, the examiner conceded the total absence from the prior art of both the acid used and the cephem made in the process recited in claim 6. In addition, the examiner discussed no references containing any suggestion or motivation either (a) to reject known acids and select instead the particular one used in claim 6, or (b) to obtain the particular cephem made according to the process of claim 6.

On appeal, the Board affirmed the examiner's rejection. After reviewing the examiner's reliance on *In re Durden*, 763 F.2d 1406, 226 USPQ 359 (Fed.Cir.1985), and the "standard" nature of the acylation reaction disclosed in the rejected claims, the Board acknowledged Ochiai's contention that the fact that "neither the final product nor the method of introducing the particular [acid] component were known, obvious or even remotely suggested in the prior art ... should be dispositive of the obviousness of the invention" recited in claim 6. *Ochiai*, 24 USPQ2d at 1267. The Board did not, however, find Ochiai's contention persuasive.

According to the Board,

[w]e are not here concerned with the patentability of the starting materials, the final compounds or other processes of making the [cephem] compounds. We are concerned only with the claimed process and the patentability thereof. Cases such as *In re Larsen*, 292 F.2d 531, 49 CCPA 711, 130 USPQ 209 (CCPA 1961); *In re Albertson*, 332 F.2d 379, 51 CCPA 1377, 141 USPQ 730 (CCPA 1964) and, particularly, *In re Durden*, *supra*, all of which were directed to processes of making chemical compounds, are

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controlling herein.... In each case, a material A, either known or novel, was subjected to a standard process of reacting with a standard reactant, B, in order to produce the result expected from the reaction of A with B. Indeed in *Albertson* as in the instant case, the only manipulative step of the process is that which is embodied in the word "reacting."

Id. The Board also rejected Ochiai's assertion that cases such as *1569 *In re Pleuddemann*, 910 F.2d 823, 15 USPQ2d 1738 (Fed.Cir.1990), *In re Mancy*, 499 F.2d 1289, 182 USPQ 303 (CCPA 1974), and *In re Kuehl*, 475 F.2d 658, 177 USPQ 250 (CCPA 1973), are in tension with *Durden* and *Albertson* and counsel allowance of the rejected claims. Distinguishing *Pleuddemann*, *Mancy*, and *Kuehl* as "method of using" rather than "method of making" cases, the Board summarized its decision as follows:

In the case before us, appellants have admitted the claims are directed to a process of making a desired AB product. The process steps, "introducing" A into AB or "reacting" A with B are standard processes used by practitioners in the prior art for reacting similar A moieties with the same B moiety. We are in agreement with the examiner that there is nothing unobvious in the particular *process* chosen and claimed by the appellants.

Ochiai, 24 USPQ2d at 1270 (emphasis in original).

Ochiai appeals, contending that both the examiner and the Board failed to apply the proper test for obviousness established by *Graham v. John Deere Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ 459 (1966), and its progeny. Specifically, according to Ochiai, both the examiner and the Board, on the assumption that our decision in *Durden* controlled the outcome of the instant case, failed to weigh the specific differences between the claimed invention--with *all* its limitations--and the prior art references, the so-called "second *Graham* factor." See *id.* at 17, 86 S.Ct. at 693-94 ("Under § 103 ... differences between the prior art and the claims at issue are to be ascertained[.]"). In addition, Ochiai contends that the decisions in *Mancy* and *Kuehl*, which, like all Court of Customs and Patent Appeals decisions, were in banc, limit

the decision in *Albertson* to its facts.

The Solicitor, while defending the correctness of the Board's conclusion and, unlike the Board itself, doing so in the familiar terms of *Graham*, also asserts that a supposed irreconcilable conflict in our cases--between *Albertson* and *Durden*, on the one hand, and *Pleuddemann*, on the other-- "makes it very difficult for patent attorneys to give cogent advice to clients or for patent examiners to render consistent decisions on the patentability (under § 103) of processes involving the use of new and unobvious starting materials." Unlike Ochiai, however, the Solicitor asks us to take the opportunity to reaffirm the vitality of *Albertson* and *Durden* in the course of deciding this appeal.

The Issue

The issue before this court is whether the Board erred in upholding the examiner's rejection of claim 6 as obvious under 35 U.S.C. § 103 in view of *Larsen*, *Albertson*, and *Durden* as interpreted by the PTO when neither the particular acid used nor the particular cephem produced is either taught or suggested by the art that predates the parent application.

The Analysis

[1] The test of obviousness *vel non* is statutory. It requires that one compare the claim's "subject matter as a whole" with the prior art "to which said subject matter pertains." 35 U.S.C. § 103. The inquiry is thus highly fact-specific by design. This is so "whether the invention be a process for making or a process of using, or some other process." *Kuehl*, 475 F.2d at 665, 177 USPQ at 255. When the references cited by the examiner fail to establish a *prima facie* case of obviousness, the rejection is improper and will be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed.Cir.1988).

[2] Applying this statutory test to the art of record, we conclude that Ochiai's process invention as claimed is not *prima facie* obvious. The process invention Ochiai recites in claim 6 specifically requires use of none other than its new, nonobvious acid as one of the starting materials. One having

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no knowledge of this acid could hardly find it obvious to make any cephem using this acid as an acylating agent, much less the particular cephem recited in claim 6. In other words, it would not have been obvious to those of ordinary skill in the art to choose the particular acid of claim 6 as an acylating agent for the known amine for the simple reason that *1570 the particular acid was unknown but for Ochiai's disclosure in the '429 application.

As one of our predecessor courts had occasion to observe, in a case involving a highly analogous set of facts, "one cannot choose from the unknown." *Mancy*, 499 F.2d at 1293, 182 USPQ at 306. [FN3]

FN3. In *Mancy*, the applicant claimed a process for using a newly discovered strain of the microorganism *Streptomyces* to produce a known antibiotic by means of conventional aerobic cultivation. 499 F.2d at 1290, 182 USPQ at 304. The examiner rejected the claim, and the Board affirmed the rejection. The court reversed, having concluding that

[w]ithout *Streptomyces bifurcus*, strain DS 23,219, knowledge of which is supplied [only] by appellants' application and availability of which is supplied by appellants' deposit of the microorganism with the Department of Agriculture, one skilled in the art would not find it obvious to produce daunorubicin by aerobically cultivating *Streptomyces bifurcus*.

Id. at 1292, 182 USPQ at 305.

In addition, although the prior art references the examiner discussed do indeed teach the use of various acids to make various cepheims, they do not define a class of acids the knowledge of which would render obvious the use of Ochiai's specifically claimed acid. [FN4] The Board noted that Ochiai's specifically claimed acid is "similar" to the acids used in the prior art. Likewise, the examiner asserted that the claimed acid was "slightly different" from those taught in the cited references. Neither characterization, however, can establish the obviousness of the use of a starting material that is new and nonobvious, both in general and in the claimed process. The mere chemical possibility

that one of those prior art acids could be modified such that its use would lead to the particular cephem recited in claim 6 does not make the process recited in claim 6 obvious "unless the prior art suggested the desirability of [such a] modification." *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed.Cir.1984). As we noted above, the examiner discussed no references containing any suggestion or motivation either (a) to modify known acids to obtain the particular one recited in claim 6, or (b) to obtain the particular new and nonobvious cephem produced by the process of claim 6. In short, the prior art contains nothing at all to support the conclusion that the particular process recited in claim 6 is obvious.

FN4. The prior art teaches the use of thienyl, pyridyl, and isothiazolyl compounds, whereas claim 6 recites the use of 2-aminothiazolyl.

In light of the above, the examiner's errors are evident. First, the examiner concluded that one of ordinary skill in the art would "recognize the use of '2-aminothiazolyl' if the final products sought were to contain this moiety." The prior art, however, contains nothing at all to suggest that one seek this concededly nonobvious final product. The examiner erred by indulging in an essentially hindsight comparison of the functioning of the new acid in claim 6 as a precursor to the claimed cephem with that of other acids in the prior art processes that produced other cepheims. Such a comparison uses Ochiai's specification as though it were prior art in order to make the claim to a method that uses the nonobvious acid to make the nonobvious cephem appear to be obvious. Second, the examiner incorrectly drew from *Durden*, a case turning on specific facts, a general obviousness rule: namely, that a process claim is obvious if the prior art references disclose the same general process using "similar" starting materials. [FN5] No such per se rule exists. Mere citation of *Durden*, *Albertson*, or any other case as a basis for rejecting process claims that differ from the prior art by their use of different starting materials is improper, as it sidesteps the fact-intensive inquiry mandated by section 103. In other words, there are not "*Durden*

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obviousness rejections" or "Albertson obviousness rejections," but rather only section 103 obviousness rejections.

FN5. This is most apparent from the examiner's baffling assertions that "a *standard, conventional* process ... is being claimed" and that "[t]he references ... abundantly demonstrate the *routineness* of the claimed process." Because the claimed process includes as a limitation the use of an acid unknown in the prior art, the prior art can only demonstrate the routineness of a process similar to the claimed one. Similarity is, of course, not necessarily obviousness.

The Board essentially repeated the examiner's error of sidestepping the particularized inquiry required by section 103 by grounding *1571 the rejection on the supposedly "controlling" effect of "[c]ases such as *In re Larsen*, *In re Albertson*, and, particularly, *In re Durden*, all of which were directed to processes of making chemical compounds." *Ochiai*, 24 USPQ2d at 1267 (citations omitted). After categorizing the process recited in claim 6 as a "process of making" rather than as a "process for using," the Board reached its conclusion according to the following syllogism: (a) "process of making" claims have led to rejections, as in *Larsen*, *Albertson*, and *Durden*, whereas "process for using" claims have led to allowances, as in *Kuehl*, *Mancy*, and *Pleuddemann*; (b) *Ochiai*'s claim is directed to a "process of making"; (c) therefore, the rejection should be affirmed. *Id.* at 1268-70. This method of analysis is founded on legal error because it substitutes supposed *per se* rules for the particularized inquiry required by section 103. It necessarily produces erroneous results. Moreover, the Board indulged a non sequitur when it grounded its conclusion of obviousness on the assertion that the starting materials recited in claim 6 are "similar" to those of the prior art. The recited acid is nonobvious, having itself been patented based on the parent application. Nor did the Board justify its characterization of "similar[ity]" in any other manner. Similarity is, as we noted above, not necessarily obviousness.

The Alleged Conflict in Our Case Law

Both the Solicitor and *Ochiai* devote substantial portions of their briefs to purported demonstrations that our precedents on the obviousness *vel non* of chemical processes are, if not in conflict, at least in severe tension with one another and thus create unnecessary confusion. Both parties identify the same two sets of three cases as presenting the conflict: *Larsen*, *Albertson*, and *Durden*, upholding rejections on appeal, are said to be inconsistent with *Kuehl*, *Mancy*, and *Pleuddemann*, reversing rejections on appeal. While we agree that *some* generalized commentary found within several of these decisions may present minor tensions, both *Ochiai* and the Solicitor draw far too bleak a picture of the state of our case law. Other language in these cases, like their actual holdings, obviates any real inconsistency.

[3] In *Albertson*, the court "reiterate[d] that all of the evidence must be considered on the 'subject matter as a whole,' from the viewpoint of one skilled in the art, in the determination of obviousness, and not simply the patentability of one of the starting reactants in a process." *Albertson*, 332 F.2d at 382, 141 USPQ at 732. Thus, the Board in this case looked to the general result in *Albertson* while ignoring the *Albertson* court's explicit methodology. Every subsequent case that the parties discuss has been grounded on the same analytic principle: namely, that section 103 requires a fact-intensive comparison of the claimed process with the prior art rather than the mechanical application of one or another *per se* rule. See *Pleuddemann*, 910 F.2d at 827, 15 USPQ2d at 1741 ("We repeat that the controlling law is in § 103 of the statute, which must be applied to the facts of this case."); *Durden*, 763 F.2d at 1411, 226 USPQ at 362 ("Our function is to apply, in each case, § 103 as written to the facts of disputed issues, not to generalize or make rules for other cases which are unforeseeable."); *Mancy*, 499 F.2d at 1292, 182 USPQ at 305 ("[T]he statutory standard of § 103 for determining obviousness of an invention is whether in view of the prior art the invention as a whole would have been obvious at the time it was made."); *Kuehl*, 475 F.2d at 665, 177 USPQ at 255 ("The test of unobviousness is a statutory test and

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requires comparison of the invention with the prior art in each case...."). As a consequence, these cases do not--indeed, *cannot*--present or create conflicting legal rules. They present, instead, applications of a unitary legal regime to different claims and fields of art to yield particularized results. It is thus surprising that the Board relies on *Durden* for a general rule when the *Durden* court expressly cautioned the bar "not to generalize or make rules for other cases."

Because the regime of section 103, much like the Fourth Amendment proscriptions against "unreasonable" searches and warrants issued upon less than "probable cause," mandates that legal outcomes turn on the close analysis of facts, reasonable persons may well disagree about the outcome of a given obviousness determination. These disagreements *1572 over the application of a legal rule can, however, be transformed into perceived "irreconcilable conflicts" between legal rules only when, as occurred here, examiners, members of the Board, and patent lawyers purport to find competing *per se* rules in our precedents and argue for rejection or allowance of a particular claim accordingly. We acknowledge that some generalized commentary found in these cases reviewing rejections of claims directed to chemical processes may, if viewed in isolation, have inadvertently provided encouragement to those who desire *per se* rules in this area. For example, one case includes an extensive discussion of the conceptual link between the obviousness *vel non* of a chemical composition and the obviousness *vel non* of a process for making the composition. [FN6] Such discussion, while entirely accurate, may have contributed to the erroneous view that one may determine the obviousness of a chemical process merely by determining whether it is a process for making a composition. As the cases noted above make clear, however, this is not and has never been the law of section 103. Indeed, *Durden*, the very case relied on by the examiner and the Board for a purported *per se* rule, clearly states that there are no such *per se* rules.

FN6. See *Pleuddemann*, 910 F.2d at 827, 15 USPQ2d at 1741 ("From the

standpoint of patent law, a compound and all of its properties are inseparable; they are one and the same thing.' *In re Papesch*, 315 F.2d 381, 391, 50 CCPA 1084, 137 USPQ 43, 51 (1963). It is the properties of appellant's compounds as bonding/priming agents for certain polymers and fillers or support surfaces that give them their utility. As stated above, the compounds and their use are but different aspects of, or ways of looking at, the same invention and consequently that invention is capable of being claimed both as new compounds or as a new method or process of bonding/priming. On the other hand, a process or method of making the compounds is a quite different thing; they may have been made by a process which was new or old, obvious or nonobvious. In this respect, therefore, there is a real difference between a process of making and a process of using and the cases dealing with one involve different problems from the cases dealing with the other.").

The use of *per se* rules, while undoubtedly less laborious than a searching comparison of the claimed invention--including all its limitations--with the teachings of the prior art, flouts section 103 and the fundamental case law applying it. *Per se* rules that eliminate the need for fact-specific analysis of claims and prior art may be administratively convenient for PTO examiners and the Board. Indeed, they have been sanctioned by the Board as well. But reliance on *per se* rules of obviousness is legally incorrect and must cease. Any such administrative convenience is simply inconsistent with section 103, which, according to *Graham* and its progeny, entitles an applicant to issuance of an otherwise proper patent unless the PTO establishes that the invention *as claimed* in the application is obvious over cited prior art, based on the specific comparison of that prior art with claim limitations. We once again hold today that our precedents do not establish any *per se* rules of obviousness, just as those precedents themselves expressly declined to create such rules. Any

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conflicts as may be perceived to exist derive from an impermissible effort to extract *per se* rules from decisions that disavow precisely such extraction.

[4] In sum, as we clearly indicated in *In re Dillon*, a recent in banc decision, "[w]hen any applicant properly presents and argues suitable method claims, they should be examined in light of all ... relevant factors, free from any presumed controlling effect of *Durden* " or any other precedent. 919 F.2d 688, 695, 16 USPQ2d 1897, 1903 (Fed.Cir.1990) (in banc), *cert. denied*, 500 U.S. 904, 111 S.Ct. 1682, 114 L.Ed.2d 77 (1991). Having compared Ochiai's claims, limited as they are to the use of a particular nonobvious starting material for making a particular nonobvious end product, to the prior art of record, we reverse the rejection of claims 6 through 10 as an incorrect conclusion reached by incorrect methodology.

REVERSED.

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